

**ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
QUARTERLY
ENVIRONMENTAL MONITORING REPORT
APRIL - JUNE 2000**



US Department of Energy, Rocky Flats Field Office
10808 Highway 93, Unit A
Golden, CO 80403-8200



AUGUST 2000

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PREPARED BY ROCKY MOUNTAIN REMEDIATION SERVICES, L.L.C.

*THE DATA IN THIS DOCUMENT MAY BE PRELIMINARY AND COULD CHANGE AFTER THE
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HIGHLIGHTS FOR APRIL - JUNE 2000

This report is produced and distributed quarterly as part of our ongoing Agreement in Principle and as a forum for the Rocky Flats Cleanup Agreement (RFCA) quarterly monitoring requirement. As discussed at a previous Exchange of Information Meeting, the Site is consolidating its reporting for selected media. In an effort to provide a more meaningful interpretation of the data presented and to save some natural resources, namely trees, the Site will be providing analytical data in the following formats.

Airborne effluent data are represented by a single graph providing cumulative plutonium emissions for 1998, 1999, and 2000. Ambient air data are represented by two graphs – a summary of estimated off-site dose as compared to a 10 Mrem per year standard, and air concentrations at perimeter sample locations expressed as a percentage of EPA's air concentration-based dose limit for members of the public. Meteorological data are represented by one windrose and a climatic summary for each month in the reporting period.

Compliance data in support of the Site National Pollutant Discharge Elimination System (NPDES) permit are presented for the reporting period. Analytical data collected in support of RFCA will include the following locations: GS01, GS03, GS08, GS10, GS11, GS31, GS43, SW022, SW027, SW091, and SW093. Data include the hydrograph, mean daily flow and available water quality measurements for each location during the reporting period. Additional surface water locations supporting the Industrial Area Interim Measures/Interim Remedial Action (IA IM/IRA) program are GS27, GS32, GS39 and GS40 and are presented in the same manner as RFCA locations. Other stations may appear or be deleted, as performance monitoring locations are added or dropped, as well as any new source detection locations that may be required. Some locations, like GS32, have no flow monitoring capabilities and only analytical data are provided. An additional section provides quarterly summary information for the Incidental Waters program.

Airborne Effluent

Complete isotopic analytical data through May 2000 are included in this report. Data for June 2000 are not complete at this time. All data are within the normally observed ranges of concentrations for their respective locations. Consistent with all other uses of these data, positive values only are included in the total release calculation (the negative values are treated as zeros). The uncertainty calculation does reflect all values.

In May, the sampler flow rate in Building 559 was found to be about two thirds of the required two cubic feet per minute. The flow could have been low for no longer than a one-week time period. The reported results reflect the lower flow rate for the one-week sampling period in question. Also, one of the filters from building 371 was dropped on the floor after being removed from the sampler. The data will be flagged accordingly.

Sampling in Building 440 was discontinued in June 2000, as the anticipated work efforts that required sampling had not yet been initiated. The sampling in this building will resume prior to any repack work being performed.

Ambient Air

Complete isotopic analytical data through May 2000 for coarse (>10 micrometers) and fine (<10 micrometers) ambient air samples are included in this report. All data are within the normally observed ranges of concentrations for their respective locations. Data for June 2000 are not complete at this time.

Due to the prescribed test burn that occurred in April, the filter cartridges from perimeter samplers were exchanged in the middle of the sampling period. The analytical results for the perimeter locations from the burn period and post-burn period were combined to create one result (per location) for the month of April.

The May 2000 filter from sampler S-201 was pulled away from the cartridge edge; some uncertainty may exist in the associated results that is not quantifiable. Such separation is frequently associated with wind gusts.

Meteorology and Climatology

Meteorological data are routinely measured from instruments on a 61-meter tower located in the west buffer zone at an elevation of 1,870 meters (6,140 feet) above sea level. All meteorological data are collected on a real-time basis and are transmitted as 15-minute averaged values to the Computer Assisted Protective Action Recommendations System (CAPARS) model for emergency response purposes. The same data are logged at the tower and downloaded for air quality and surface water modeling purposes.

Climatic summaries and wind roses for April through June 2000 are included in this report. Following calibration of the solar-radiation measurement device, solar data became available on April 5, 2000.

As a result of the protocols used to validate the meteorological data, each 15-minute averaged observation is validated, rather than the entire observation record for the same time period (which might contain 70 different observations-i.e. temperature, wind speed, etc.). Missing data are reported with respect to the wind speed and wind direction values, for example, rather than recording all observations missing for the same 15 minute period. There were four hours of missing wind speed/direction data for this time period.

Surface Water

Surface water analytical data collected during third quarter of FY00 (April, May, and June) for NPDES/FFCA permit compliance are presented in this report. All reported data were consistent with historical measurements and within permit limitations.

Included in this report are two surface water locations that monitor the Mound Site area. These locations are SW061 and SW132 and are sampled quarterly for isotopic Pu/Am, selected total and dissolved metals, and EPA VOA Method 8260.

Hydrologic Monitoring and Rocky Flats Cleanup Agreement (RFCA) Monitoring

All available analytical data collected during third quarter of FY00 (April, May, and June) from samples supporting RFCA and Hydrologic Monitoring programs are included in this report.

Incidental Water Monitoring

A summary of Incidental Waters dispositioned during third quarter of FY00 (April, May, and June) are presented in this report.

1. AIR DATA

1.1 EFFLUENT AIR DATA

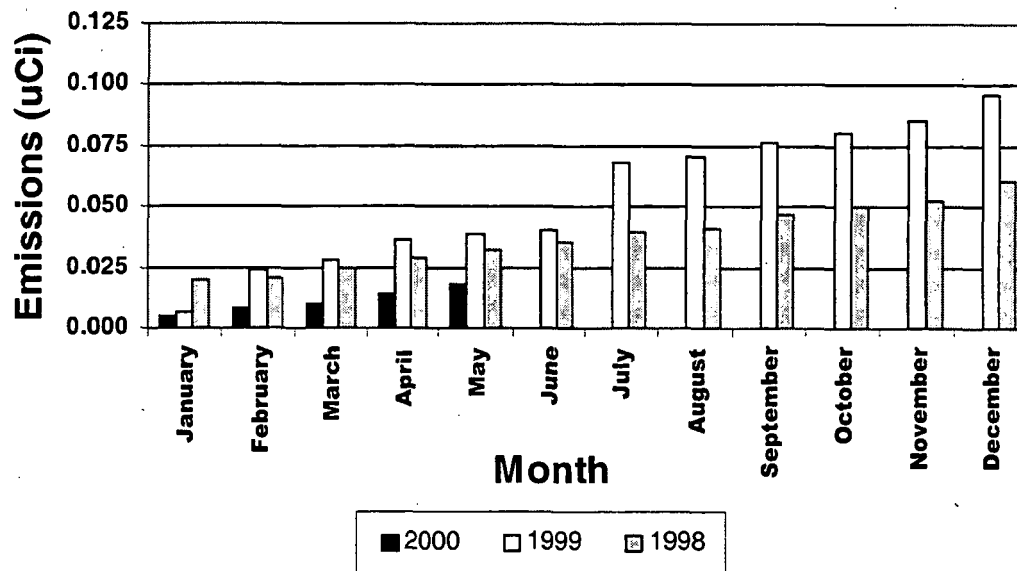


Figure 1-1. Cumulative Plutonium Airborne Effluent Emissions

The above graph shows the cumulative airborne effluent emissions of plutonium from building stacks. The results from the most recently analyzed effluent stack samples, March, April, and May 2000, are consistent with previously measured plutonium concentrations, with a May 2000 cumulative, year-to-date plutonium emission of 0.018 microcuries (uCi).

Americium and uranium emissions for March, April, and May 2000 are also within the ranges seen in 1998 and 1999. The monthly tritium airborne effluent emissions for April, May and June 2000 are similar to the emissions seen in March 2000.

1.2 AMBIENT AIR DATA

1.2.1 Perimeter Sampler Locations

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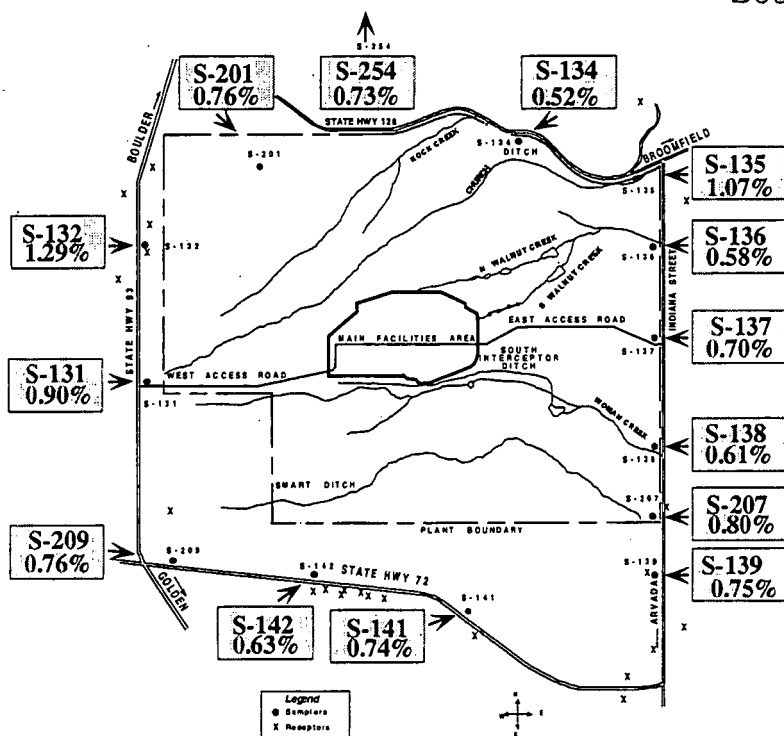


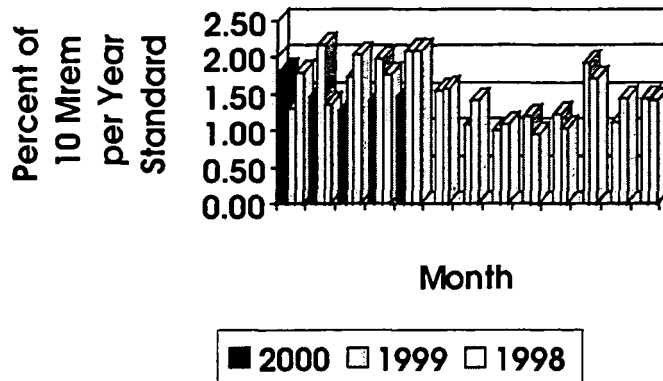
Figure 1-2. Perimeter Samplers Dose Map

The above map illustrates the perimeter Radioactive Ambient Air Monitoring Program (RAAMP) sampler locations and the twelve-month rolling-average maximum potential dose through May 2000, expressed as a percentage of EPA's air concentration-based dose limit for members of the public.

The percentages include the naturally occurring uranium isotopes as well as the isotopes from site contributions. The average concentration observed at location S-132 is projected to equate to the highest potential dose, which is consistent with the previously reported results.

The percentage values are based on the measured air concentrations, averaged over the year, converted as a percent of the Rad NESHAP concentration limits.

Perimeter Sampler Locations – Dose Rate Graphs

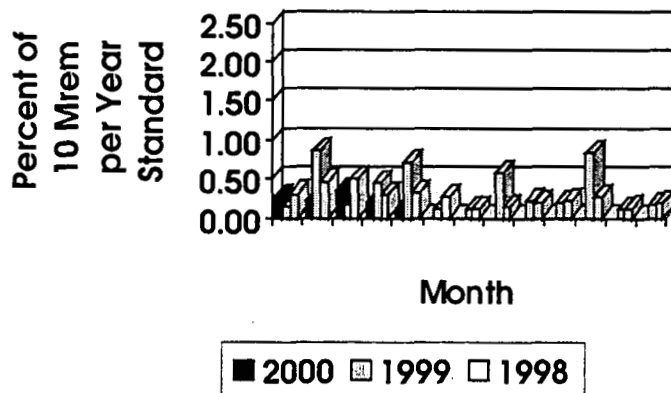


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Figure 1-3. Offsite Dose Rate Summary

The above graph illustrates the monthly estimated maximum potential dose rates at the perimeter sampler showing highest radionuclide concentrations, including contributions from naturally occurring uranium isotopes. The highest dose rates for March, April, and May 2000 were seen at location S-132. The monthly dose rates were less than 2.5 percent of the 10 mrem standard.

1.2.2 Perimeter Sampler Locations – Dose Rate Graphs, continued



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Figure 1-4. Offsite Dose Rate Summary Without U-234 and U-238

Omitting the uranium 234 and 238 contributions may better reflect the contribution from Site operations. This presentation results in an estimated maximum potential dose rate of less than 0.9% of the equivalent concentration limit.

Ambient concentrations and dose rates for 2000 are similar to the rates observed in 1998 and 1999.

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2. METEOROLOGY AND CLIMATOLOGY

2.1 WIND ROSES FOR APRIL, MAY, AND JUNE 2000

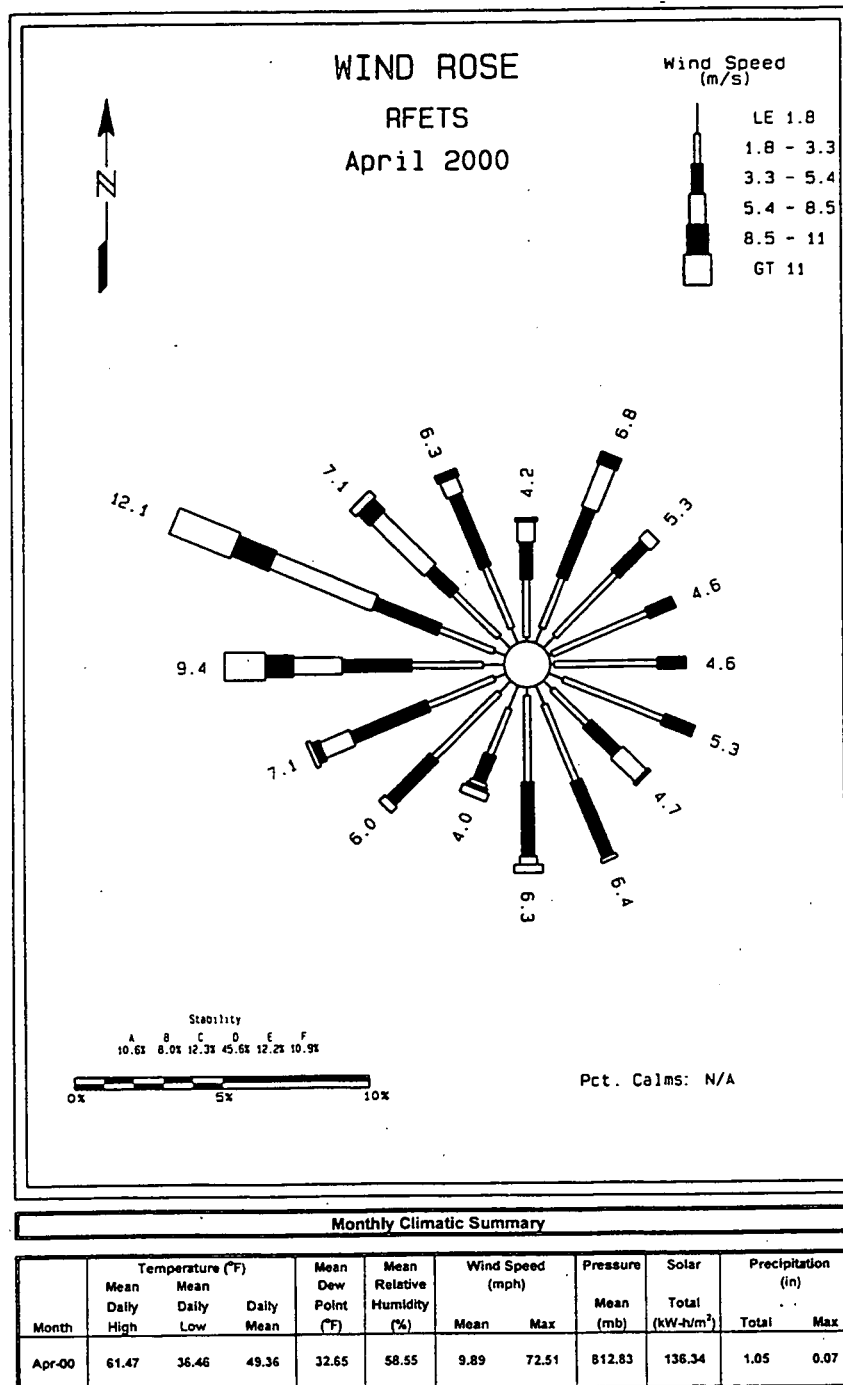


Figure 2-1. Wind Rose for Rocky Flats Environmental Technology Site for April 2000

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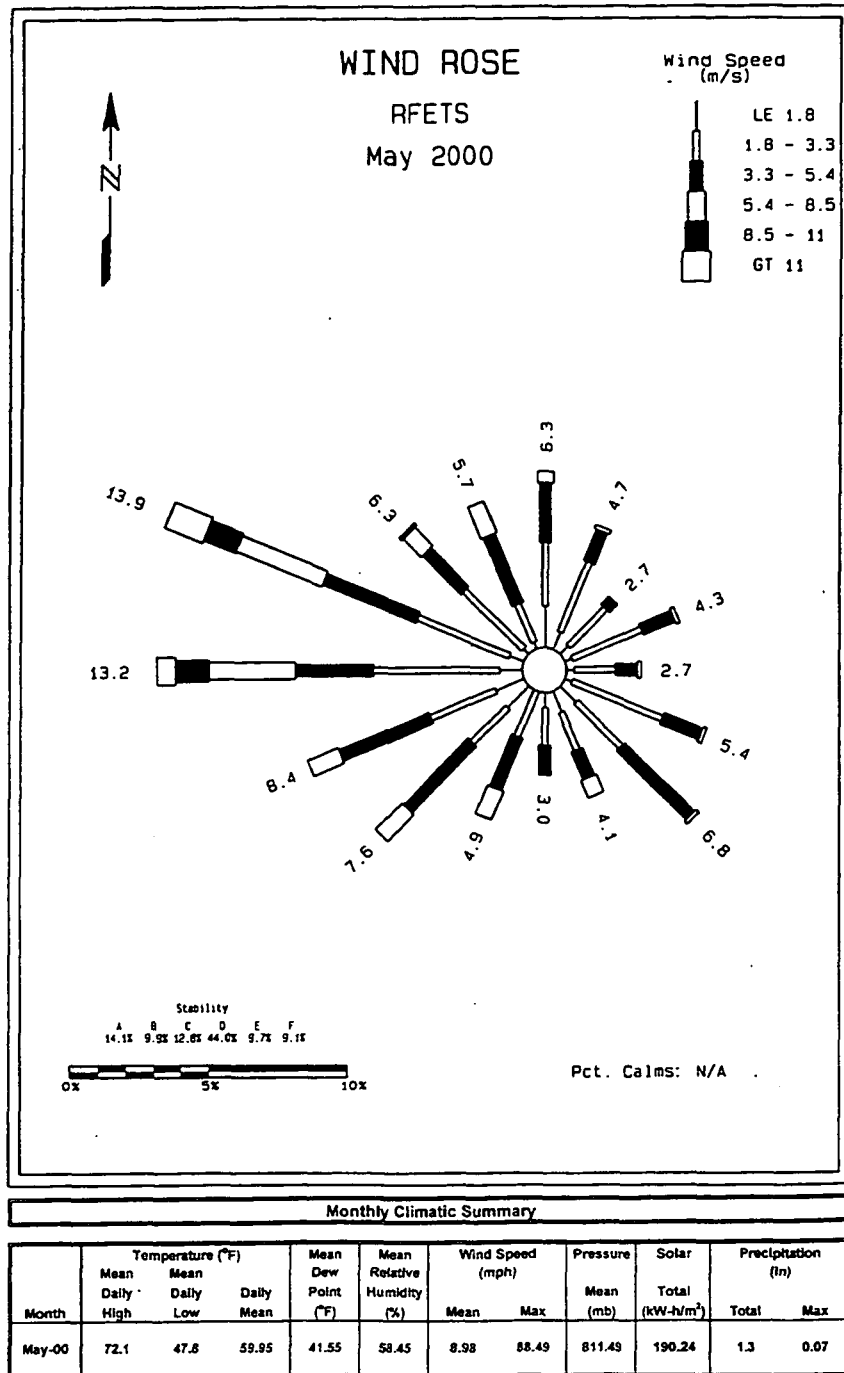


Figure 2-2. Windrose for Rocky Flats Environmental Technology Site for May 2000

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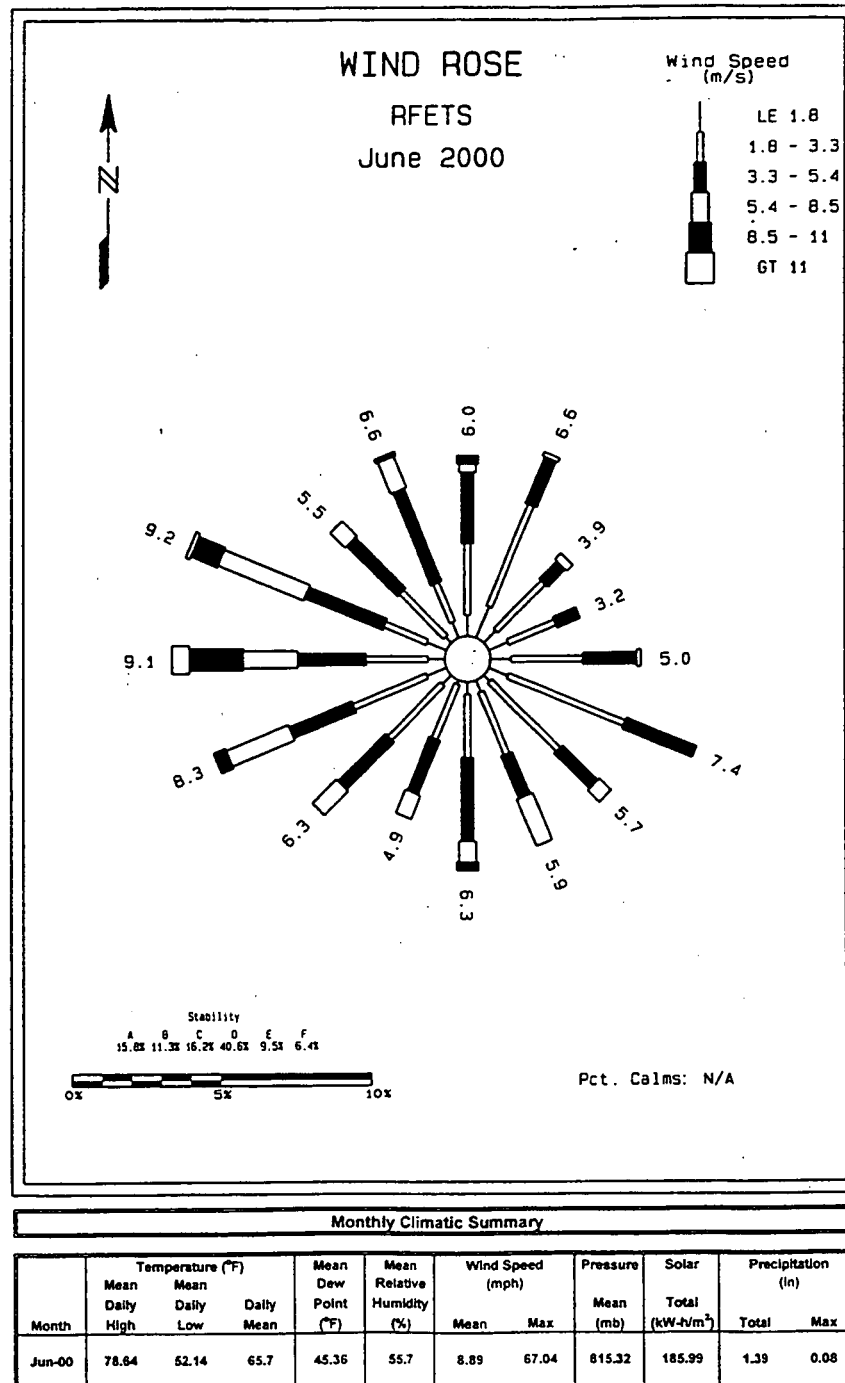
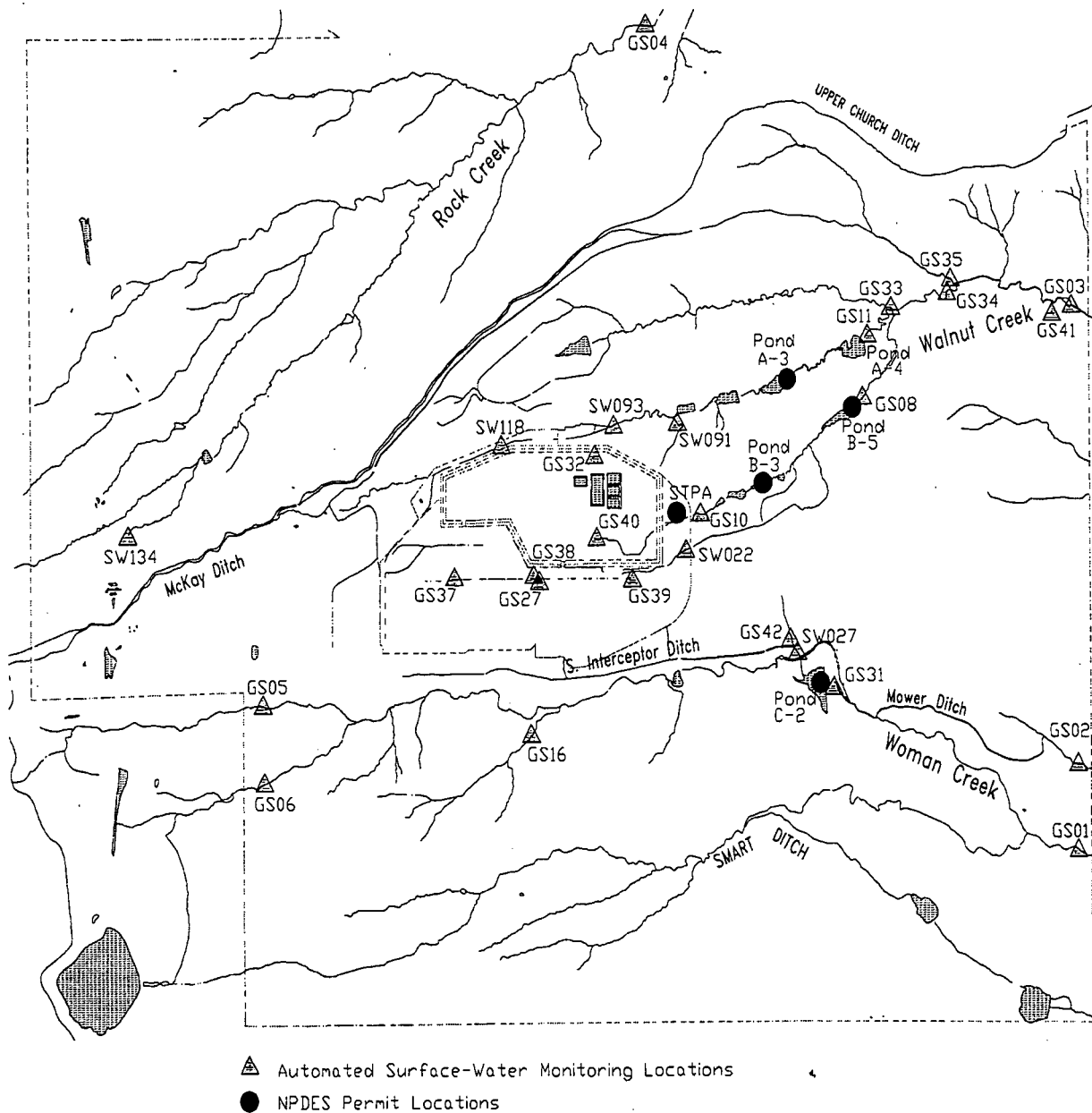


Figure 2-3. Windrose for Rocky Flats Environmental Technology Site for June 2000

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3. SURFACE WATER DATA

Map 3-1. Holding Ponds and Liquid Effluent Water Courses



3.1 NPDES SUMMARY DATA

Table 3-1. Pond B-3 (Outfall 001A)

Dates of discharge 04/01/00 – 06/30/00

Parameter & Units	Measured 30-day Average	Limit 30-Day Average	Measured 7-Day Average	Limit 7-Day Average	Measured Daily Maximum	Limit Daily Maximum
NO3/NO2, mg/l	4 - 5	10	5 - 6	20	N/A	N/A
TRC, mg/l	N/A	N/A	N/A	N/A	0.05 – 0.09	0.5
BOD5, mg/l	5 - 6	a	N/A	N/A	9 - 16	a
CBOD5, mg/l	3	a	N/A	N/A	4 - 7	a
TSS, mg/l	<6 - 11	a	N/A	N/A	9 - 35	a

a Report Only
N/A Not Applicable
TRC Total Residual Chlorine
TSS Total Suspended Solids
BOD5 Biochemical Oxygen Demand, 5-Day Test
CBOD5 Carbonaceous Biochemical Oxygen Demand, 5-Day Test

Note: Results are the range of value measured during the reporting period

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Rocky Flats Environmental Technology Site
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Table 3-2. Sewage Treatment Plant (Outfall STP A)

Dates of Discharge 04/01/00 – 06/30/00. Metals and VOA Samples Collected 04/04/00, 05/02/00, 06/06/00

Parameter & Units	Measured 30-day Average	Limit 30-Day Average	Measured 7-Day Average	Limit 7-Day Average	Measured Daily Minimum	Limit Daily Minimum	Measured Daily Maximum	Limit Daily Maximum	Observed Sheen	Measured Result
pH, SU	N/A	N/A	N/A	N/A	6.7 – 7.0	6.0	7.9 – 8.0	9.0	N/A	N/A
TSS, mg/l	<6	30	<7	45	N/A	N/A	N/A	N/A	N/A	N/A
Total Phos., mg/l	2	8	N/A	N/A	N/A	N/A	3 - 9	12	N/A	N/A
TRC, mg/l	<0.02	a	<0.03	a	N/A	N/A	N/A	N/A	N/A	N/A
Total Cr., ug/l	<1.0	50	N/A	N/A	N/A	N/A	<1.0 – 1.7	100	N/A	N/A
F. Coliform, #/100ml	<5	200b	<3 - 144	400b	N/A	N/A	N/A	N/A	N/A	N/A
CBOD5, mg/l	<3	10	N/A	N/A	N/A	N/A	11 - 15	25	N/A	N/A
Oil & Grease	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	c	N/A
WET										
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Antimony, ug/l	<3.0	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic, ug/l	1.2 – 2.2	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Beryllium, ug/l	<1.0	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cadmium, ug/l	<1.0	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Copper, ug/l	1.5 – 3.7	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Iron, ug/l	45.5 - 104	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Lead, ug/l	<2	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manganese, ug/l	17.3 - 100	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mercury, ug/l	<0.10	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Nickel, ug/l	1.3 – 3.3	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Silver, ug/l	<1.0	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zinc, ug/l	25.9 – 36.4	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
VOC's, ug/l	d	a	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

a	Report Only	TRC	Total Residual Chlorine
b	Geometric Mean	CBOD5	Carbonaceous Biochemical Oxygen Demand, 5-Day Test
c	No Sheen Observed	PQL	Practical Quantitation Limit
d	None Detected Above PQL	WET	Whole Effluent Toxicity
N/A	Not Applicable	SU	Standard Units
TSS	Total Suspended Solids		

Table 3-3. Ponds – Interior and Terminal

Pond A-3 discharged 04/07/00 – 04/11/00, 05/16/00 – 05/17/00 and 05/19/00 – 05/21/00; Pond A-4 discharged 06/14/00 – 06/22/00, and Pond B-5 discharged 04/27/00 – 05/10/00 and 06/14/00 – 06/26/00. Pond C-2 did not discharge during the reporting period.

Location, Parameter and Units	Measured 30-day Average	Limit 30-Day Average	Measured 7-Day Average	Limit 7-Day Average	Measured Daily Minimum	Limit Daily Minimum	Measured Daily Maximum	Limit Daily Maximum	Measured Result
Pond A-3 (Outfall 002) pH, SU	N/A	N/A	N/A	N/A	8.1 – 8.4	6.0	8.6	9.0	N/A
NO3/NO2, mg/l	5 - 8	10	N/A	N/A	N/A	N/A	5 - 8	20	N/A
Pond A-4 (Outfall 005A) Total Cr., ug/l	N/A	N/A	N/A	N/A	N/A	N/A	<1	50	N/A
WET									
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Pond B-5 (Outfall 006A) Total Cr., ug/l	N/A	N/A	N/A	N/A	N/A	N/A	1	50	N/A
WET									
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	>100
NO3/NO2, mg/l*	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pond C-2 (Outfall 007A) Total Cr., ug/l	N/A	N/A	N/A	N/A	N/A	N/A		50	N/A
WET									
Ceriodaphnia	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Fathead Minnows	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

* Sample and analysis required only if Pond B-3 is bypassed

N/A Not applicable

SU Standard units

TRC Total residual chlorine

WET Whole Effluent Toxicity

3.2 MOUND PLUME SUMMARY DATA

Table 3-4. Mound Plume Locations SW061 and SW132

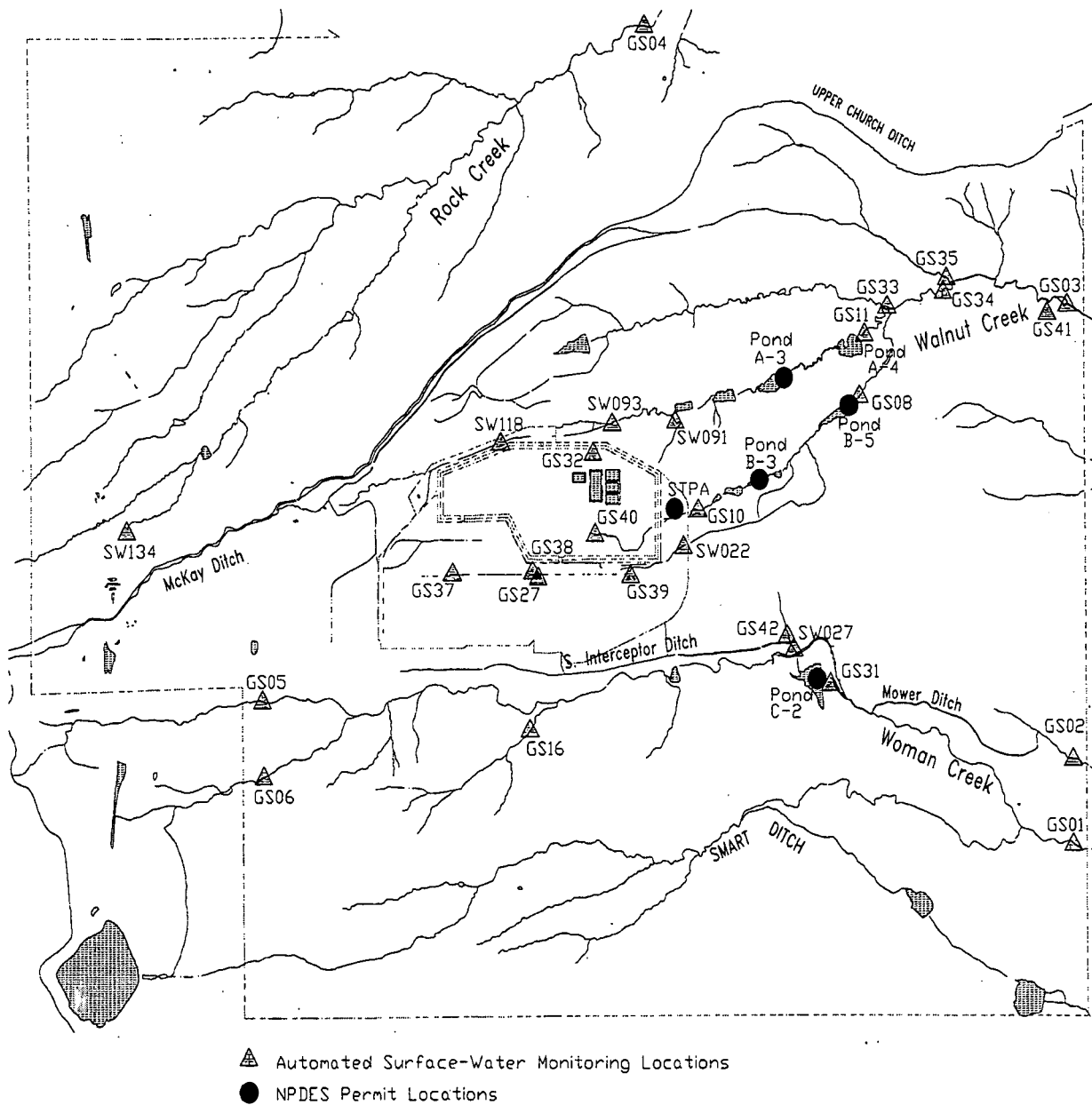
Analyte	SW061	SW132
	04/11/00	04/11/00
Pu 239/240, pCi/l	0.004 +/- 0.013	0.001 +/- 0.010
Am 241, pCi/l	0.000 +/- 0.013	-0.002 +/- 0.015
Silver, dissolved, ug/l	<1.0	<1.0
Aluminum, total, ug/l	20.1	71.8
Arsenic, total, ug/l	<1.5	<1.5
Barium, total, ug/l	474	161
Beryllium, total, ug/l	<0.50	<0.50
Cadmium, dissolved, ug/l	<0.50	0.83
Copper, dissolved, ug/l	<0.50	1.0
Iron, total, ug/l	154	218
Mercury, total, ug/l	0.29	0.25
Manganese, total, ug/l	131	46.9
Nickel, dissolved, ug/l	<1.0	<1.0
Lead, dissolved, ug/l	<1.0	<1.0
Antimony, total, ug/l	3.3	4.9
Selenium, dissolved, ug/l	<2.0	<2.0
Zinc, dissolved, ug/l	<0.50	119
EPA VOA Method 8260, compounds found >RFCA Seg 5 Action Level	None detected	None detected

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4. HYDROLOGIC AND ROCKY FLATS CLEAN-UP AGREEMENT (RFCA) DATA

Map 4-1. Gaging Station Locations



4.1 FLOW MONITORING

Table 4-1. Gaging Station GS01: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.968	0.376	0.002
2	1.419	0.280	0.000
3	1.699	0.225	0.000
4	1.766	0.182	0.000
5	0.867	0.156	0.000
6	0.598	0.118	0.000
7	0.462	0.113	0.000
8	0.437	0.182	0.000
9	0.428	0.432	0.000
10	0.391	0.275	0.000
11	0.366	0.222	0.000
12	0.358	0.173	0.000
13	0.331	0.144	0.000
14	0.307	0.134	0.000
15	0.313	0.114	0.000
16	0.477	0.092	0.000
17	0.429	0.119	0.002
18	0.346	0.365	0.000
19	0.279	0.305	0.000
20	0.268	0.206	0.000
21	0.254	0.137	0.000
22	0.256	0.087	0.000
23	0.363	0.056	0.000
24	0.321	0.047	0.000
25	0.245	0.050	0.001
26	0.218	0.056	0.002
27	0.205	0.051	0.000
28	0.193	0.039	0.000
29	0.193	0.024	0.000
30	0.544	0.022	0.000
31	NA	0.020	NA
Monthly Average (cfs)	0.510	0.155	0.000

Monthly Discharge

Cubic Feet	1322044	414894	667
Gallons	9889574	3103625	4991
Acre-Feet	30.35	9.52	0.02

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

24

Gaging Station GS01 is located at 39° 52' 40"N, 105° 09' 55"W, at Woman Creek and Indiana Street (See Section 4 Map). This station is a RFCA Point of Compliance, a Buffer Zone Monitoring Location and a monitoring point for water leaving the Site and flowing to Woman Creek Reservoir. This station collects samples for selected radionuclides using continuous flow-paced sampling and storm event sampling for selected water quality parameters, metals, and major ions.

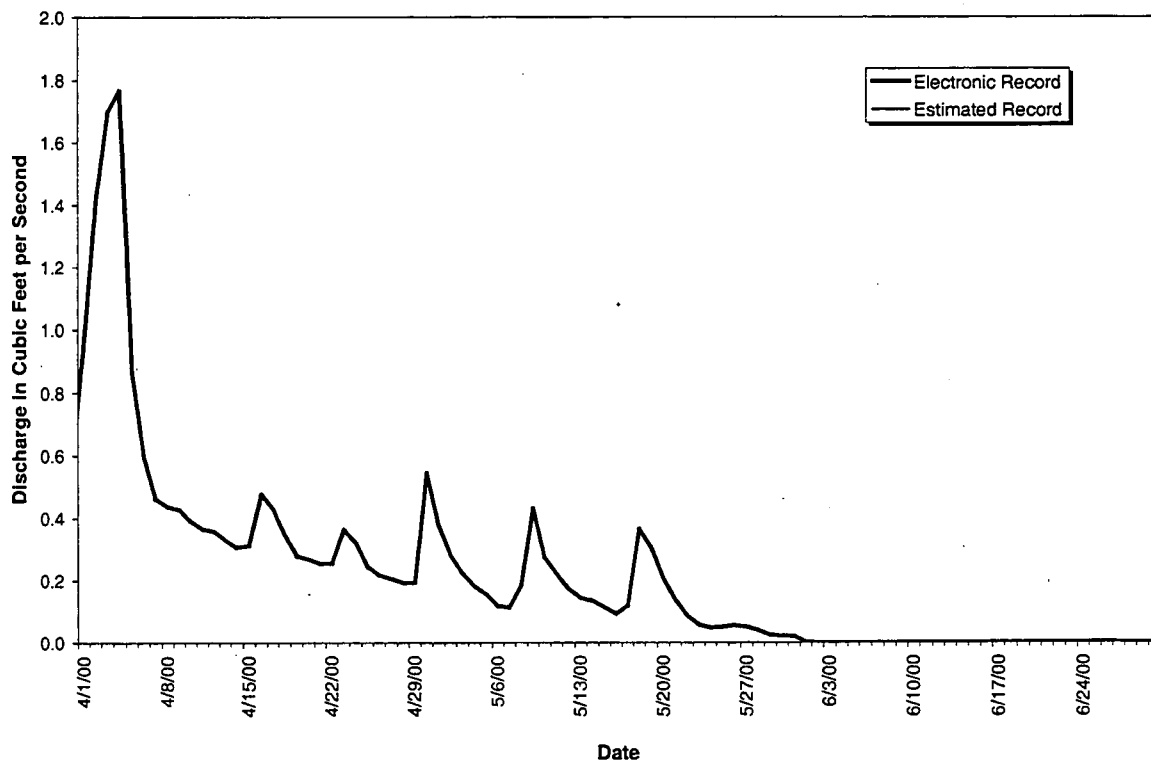


Figure 4-1. Mean Daily Discharge at GS01, Water Year 2000 (April, May, and June)

25

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Table 4-2. Gaging Station GS03: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.216	1.167	0.001
2	0.286	0.931	0.000
3	0.739	1.005	0.000
4	0.607	0.924	0.000
5	0.229	0.800	0.000
6	0.052	0.753	0.000
7	0.008	0.682	0.000
8	0.006	1.023	0.000
9	0.005	1.554	0.000
10	0.004	0.715	0.000
11	0.005	0.018	0.000
12	0.006	0.005	0.000
13	0.005	0.004	0.000
14	0.006	0.002	1.045
15	0.010	0.002	2.811
16	0.009	0.003	3.079
17	0.008	0.006	3.069
18	0.006	0.002	2.655
19	0.002	0.002	2.185
20	0.007	0.002	1.934
21	0.006	0.002	1.956
22	0.005	0.000	2.114
23	0.004	0.001	1.163
24	0.003	0.003	0.840
25	0.001	0.005	0.650
26	0.001	0.002	0.389
27	0.432	0.001	0.121
28	1.609	0.004	0.065
29	1.596	0.004	0.009
30	1.567	0.002	0.005
31	NA	0.004	NA
Monthly Average (cfs)	0.248	0.311	0.803

Monthly Discharge

Cubic Feet	642905	831898	2081582
Gallons	4809264	6223028	15571317
Acre-Feet	14.76	19.09	47.78

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

26

Gaging Station GS03 is located at 39° 54' 7"N, 105° 9' 59"W, at Walnut Creek and Indiana Street (See Section 4 Map). This station is a RFCA Point of Compliance, a Buffer Zone Monitoring Location and a monitoring point for water leaving the Site and flowing to the Broomfield Diversion Ditch. This station collects samples for selected radionuclides using continuous flow-paced sampling and storm event sampling for selected water quality parameters, metals, and major ions.

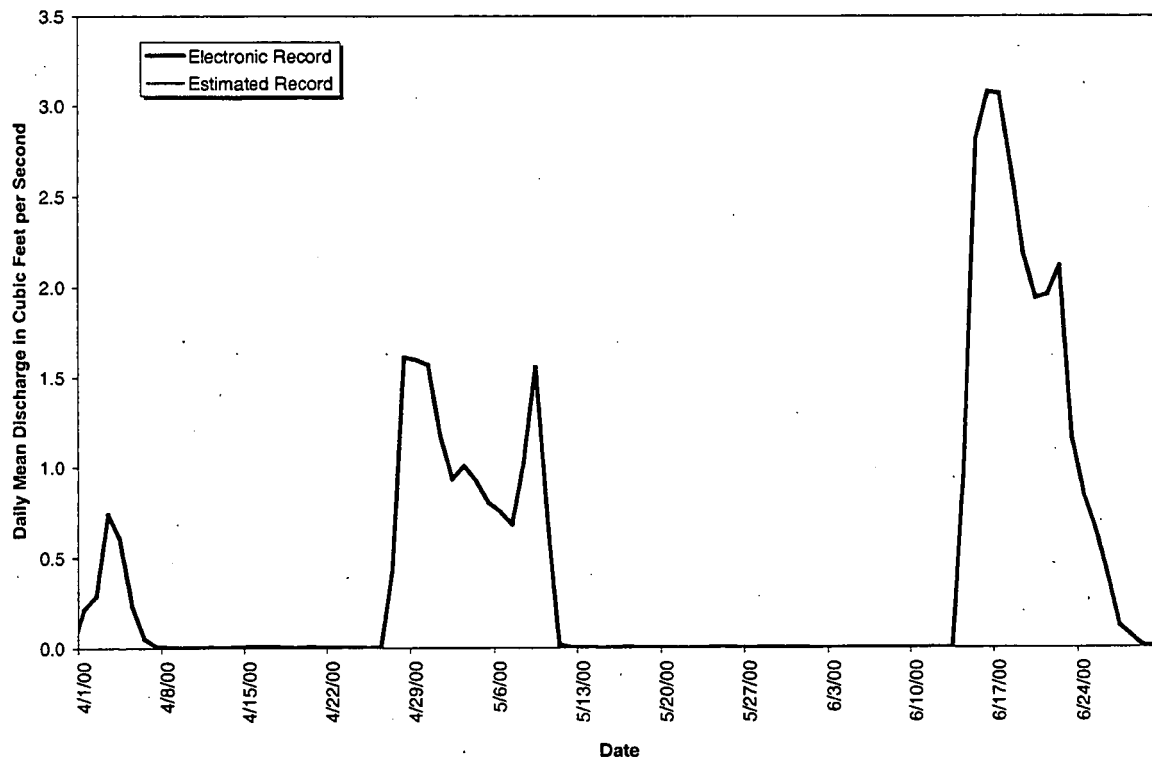


Figure 4-2. Mean Daily Discharge at GS03, Water Year 2000 (April, May, and June)

Table 4-3. Gaging Station GS08: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.000	1.761	0.000
2	0.000	1.519	0.000
3	0.000	1.587	0.000
4	0.000	1.475	0.000
5	0.000	1.222	0.000
6	0.000	1.156	0.000
7	0.000	1.003	0.000
8	0.000	1.593	0.000
9	0.000	2.327	0.000
10	0.000	0.760	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	1.034
15	0.000	0.000	1.569
16	0.000	0.000	1.637
17	0.000	0.000	1.615
18	0.000	0.000	1.472
19	0.000	0.000	1.498
20	0.000	0.000	1.572
21	0.000	0.000	1.503
22	0.000	0.000	2.215
23	0.000	0.000	1.743
24	0.000	0.000	1.260
25	0.000	0.000	0.810
26	0.000	0.000	0.300
27	1.228	0.000	0.000
28	2.535	0.000	0.000
29	2.440	0.000	0.000
30	2.347	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.285	0.465	0.608

Monthly Discharge

Cubic Feet	738615	1244503	1575001
Gallons	5525222	9309529	11781823
Acre-Feet	16.96	28.57	36.16

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

28

Gaging Station GS08 is located 39° 53' 54"N, 105° 10' 48"W, at the Pond B-5 Outfall on South Walnut Creek (See Section 4 Map). This station is a RFCA Point of Compliance and monitors water discharged from Pond B-5 to South Walnut Creek. This station collects samples for selected radionuclides using continuous flow-paced sampling.

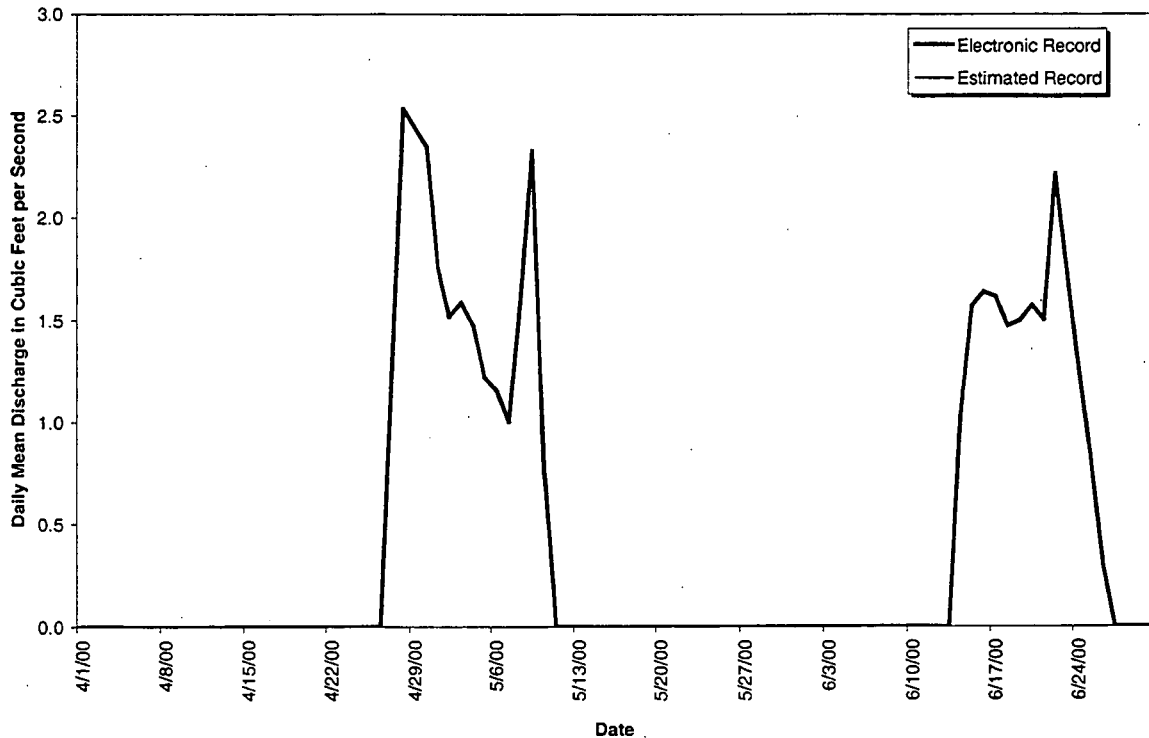


Figure 4-3. Mean Daily Discharge at GS08, Water Year 2000 (April, May, and June)

Table 4-4. Gaging Station GS10: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.341	0.071	0.055
2	0.760	0.062	0.056
3	0.301	0.064	0.056
4	0.159	0.061	0.057
5	0.112	0.059	0.058
6	0.099	0.057	0.058
7	0.088	0.057	0.057
8	0.084	0.773	0.063
9	0.083	0.107	0.069
10	0.081	0.066	0.064
11	0.092	0.061	0.066
12	0.083	0.057	0.069
13	0.079	0.055	0.073
14	0.078	0.055	0.084
15	0.140	0.054	0.088
16	0.099	0.053	0.108
17	0.082	0.674	0.256
18	0.079	0.251	0.099
19	0.077	0.062	0.121
20	0.074	0.056	0.103
21	0.072	0.053	0.112
22	0.099	0.053	0.119
23	0.142	0.053	0.126
24	0.083	0.147	0.120
25	0.074	0.110	0.337
26	0.074	0.057	0.836
27	0.074	0.053	0.112
28	0.075	0.052	0.095
29	0.086	0.052	0.094
30	0.737	0.055	0.102
31	NA	0.055	NA
Monthly Average (cfs)	0.150	0.113	0.124

Monthly Discharge

Cubic Feet	389185	302068	320812
Gallons	2911304	2259628	2399838
Acre-Feet	8.93	6.93	7.36

Note: mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

30

Gaging Station GS10 is located 39° 53' 35"N, 105° 11' 27"W on South Walnut Creek above the Pond B-1 Bypass (See Section 4 Map). This station is a RFCA Action Level Framework and a New Source Detection Location and monitors water leaving the Site Industrial Area and entering the B-Series Ponds and South Walnut Creek. This station collects samples for selected radionuclides, metals, and water quality parameters using continuous flow-paced sampling.

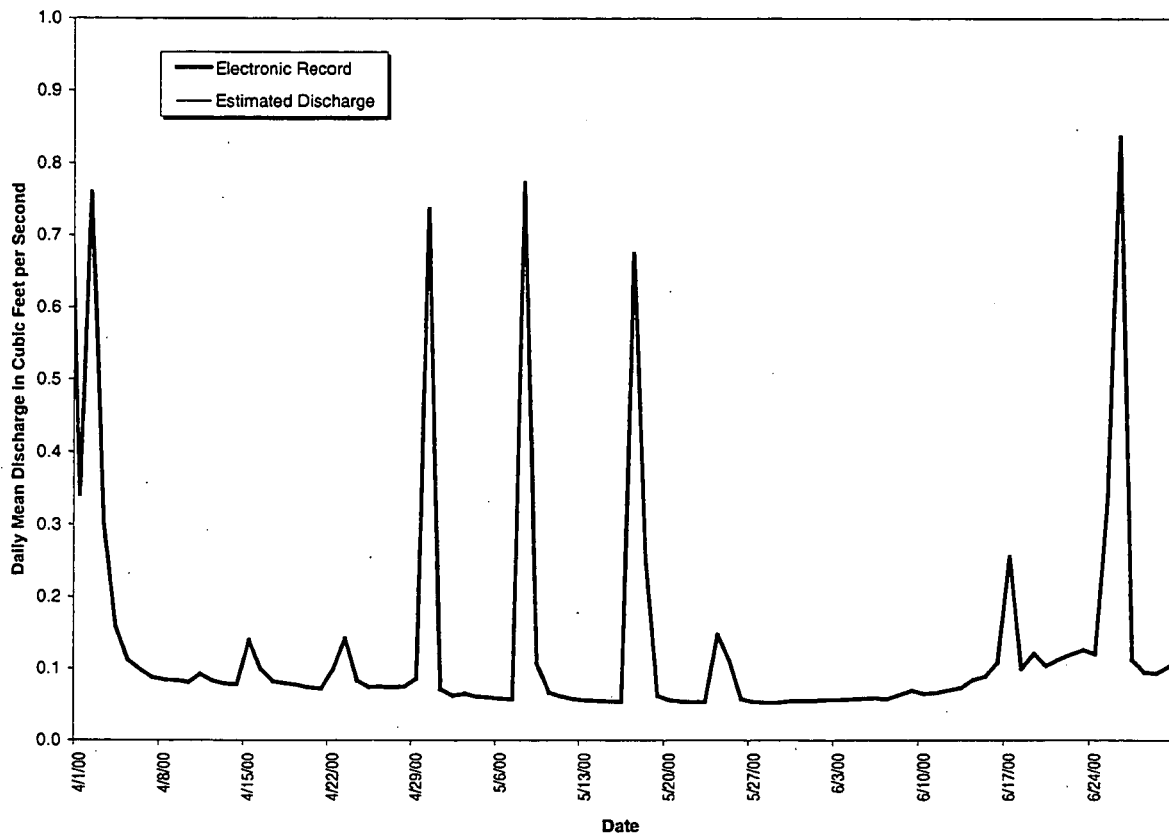


Figure 4-4. Mean Daily Discharge at GS10, Water Year 2000 (April, May, and June)

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Table 4-5. Gaging Station GS11: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	1.468
15	0.000	0.000	2.304
16	0.000	0.000	2.321
17	0.000	0.000	2.288
18	0.000	0.000	2.012
19	0.000	0.000	1.489
20	0.000	0.000	1.148
21	0.000	0.000	1.196
22	0.000	0.000	0.595
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.000	0.000	0.494

Monthly Discharge

Cubic Feet	0	0	1280625
Gallons	0	0	9579737
Acre-Feet	0.00	0.00	29.39

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

32

Gaging Station GS11 is located 39° 54' 3"N, 105° 10' 47"W, at the Pond A-4 Outfall on North Walnut Creek (See Section 4 Map). This station is a RFCA Point of Compliance and monitors water discharged from Pond A-4 to North Walnut Creek. This station collects samples for selected radionuclides using continuous flow-paced sampling.

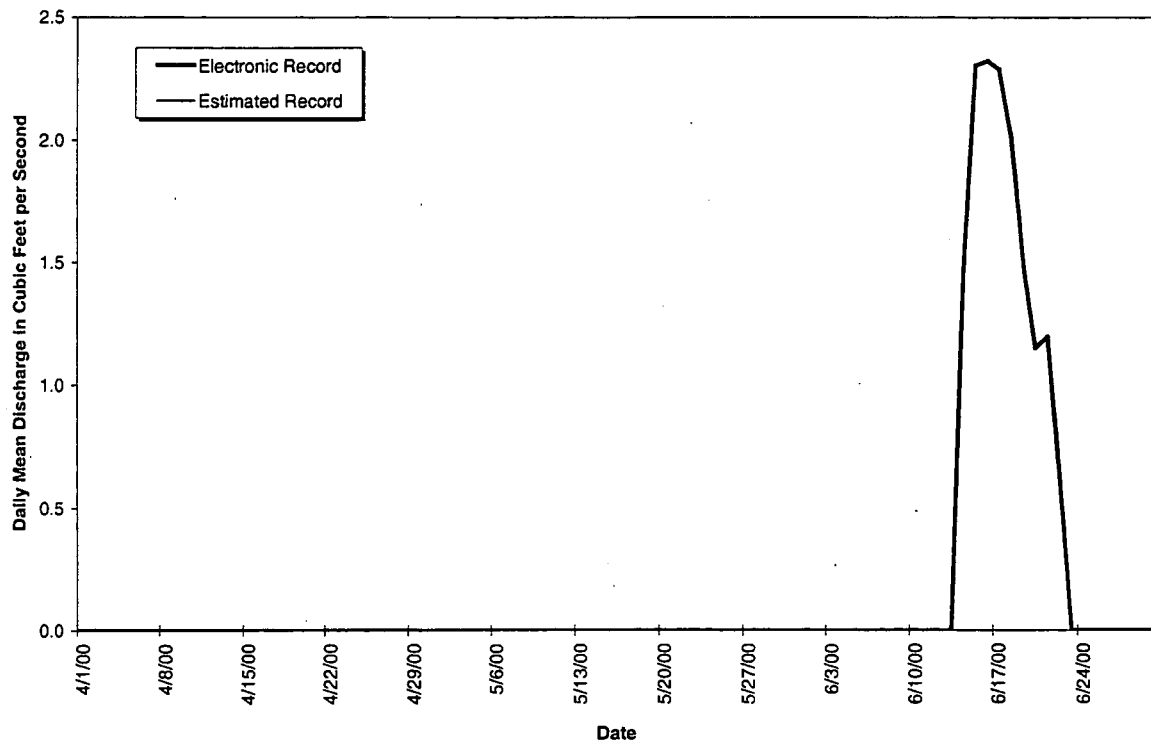


Figure 4-5. Mean Daily Discharge at GS11 Water Year 2000 (April, May, and June)

Table 4-6. Gaging Station GS27: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.0015	0.0000	0.0000
2	0.0028	0.0000	0.0000
3	0.0005	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0017	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0009	0.0003
18	0.0000	0.0005	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0001	0.0000
25	0.0000	0.0000	0.0002
26	0.0000	0.0000	0.0021
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0014	0.0000	0.0000
31	NA	0.0000	NA
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	541	269	226
Gallons	4047	2012	1694
Acre-Feet	0.012	0.006	0.005

Note: mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging Station GS27 is located at State Plane 2080529; 751216, at the small drainage ditch NW of Building 884 (see Section 4 Map). This location is a Performance and Best Management Practices Monitoring Location and monitors water draining from the Building 889 area. This station collects samples for selected radionuclides using continuous, flow-paced sampling.

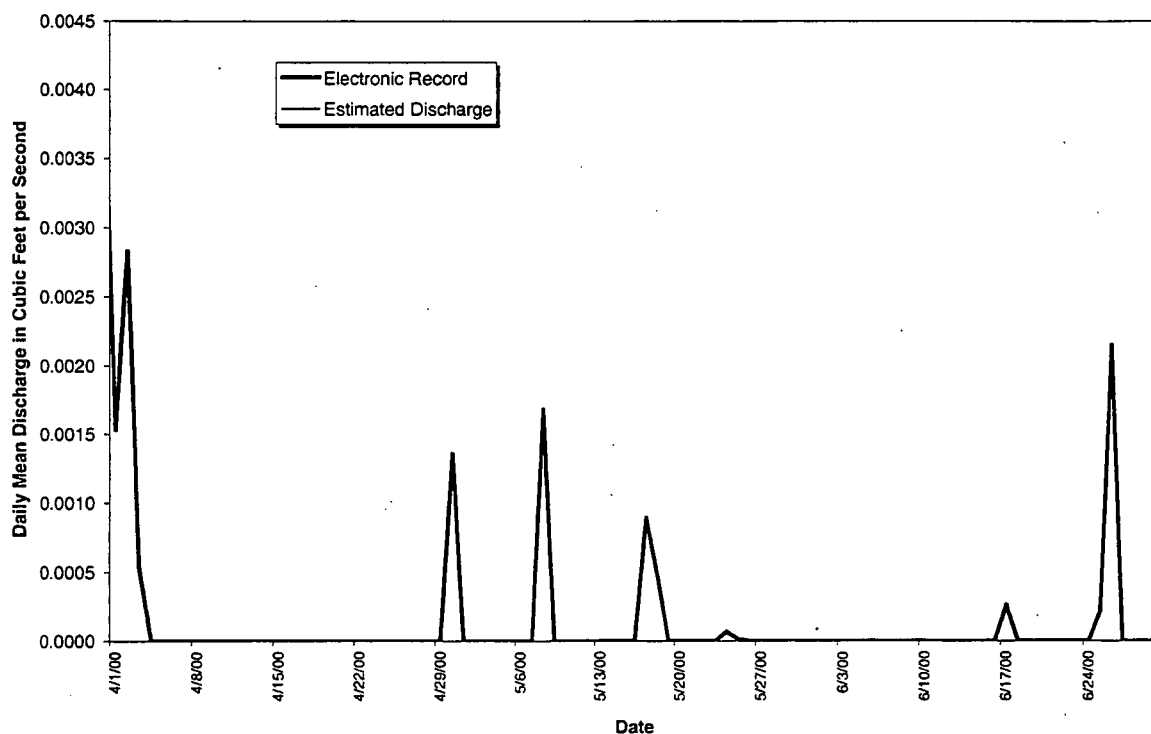


Figure 4-6. Mean Daily Discharge at GS27 Water Year 2000 (April, May, and June)

Table 4-7. Gaging Station GS31: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.000	0.000	0.000
2	0.000	0.000	0.000
3	0.000	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.000	0.000
9	0.000	0.000	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.000	0.000
18	0.000	0.000	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.000
27	0.000	0.000	0.000
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.000	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.000	0.000	0.000

Monthly Discharge

Cubic Feet	0	0	0
Gallons	0	0	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

36

Gaging Station GS31 is located at State Plane 2089268: 747506, at the Pond C-2 Outfall (See Section 4 Map). This station is a RFCA Point of Compliance and monitors water discharged from Pond C-2. This station collects samples for selected radionuclides using continuous flow-paced sampling.

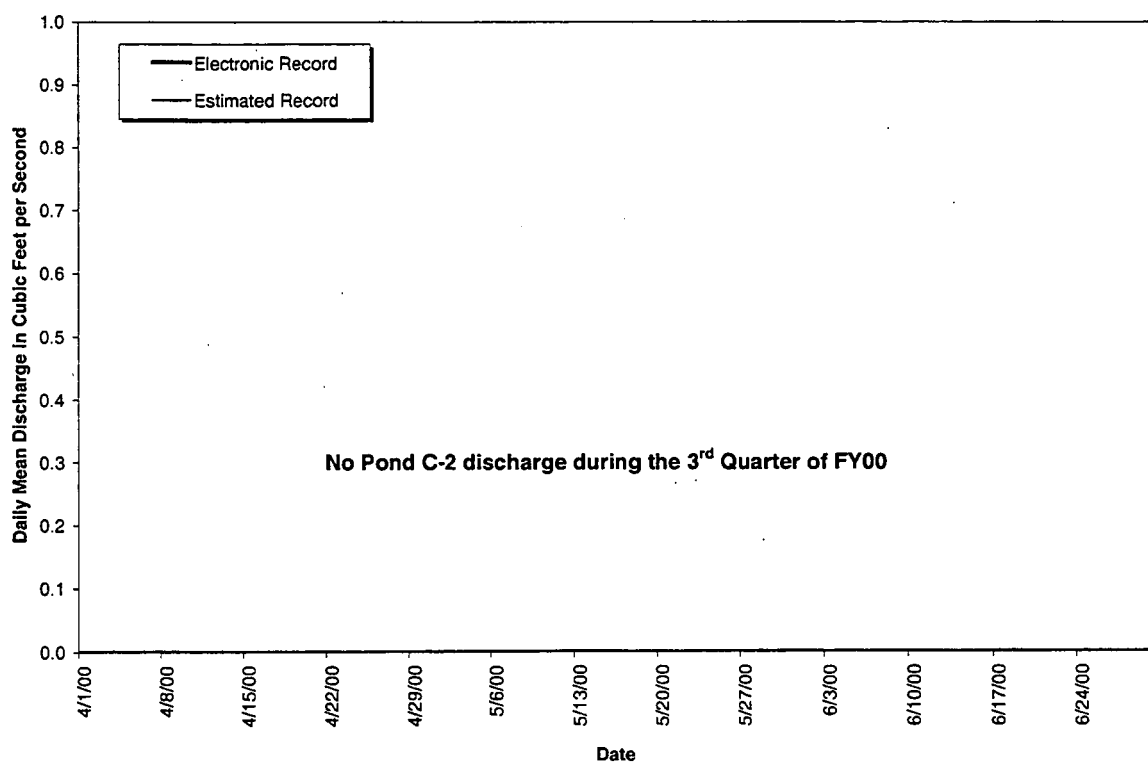


Figure 4-7. Mean Daily Discharge at GS31 Water Year 2000 (April, May, and June)

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Table 4-8. Gaging Station GS39: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.0077	0.0000	0.0000
2	0.0245	0.0000	0.0000
3	0.0065	0.0000	0.0000
4	0.0052	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0356	0.0000a
9	0.0000	0.0003	0.0000a
10	0.0000	0.0000	0.0000a
11	0.0000	0.0000	0.0000a
12	0.0000	0.0000	0.0000a
13	0.0000	0.0000	0.0000a
14	0.0000	0.0000	0.0000a
15	0.0003	0.0000	0.0000a
16	0.0000	0.0000	0.0000a
17	0.0000	0.0338	0.0060a
18	0.0000	0.0080	0.0000a
19	0.0000	0.0000	0.0003a
20	0.0000	0.0000	0.0000a
21	0.0000	0.0000	0.0000a
22	0.0000	0.0000	0.0000
23	0.0017	0.0000a	0.0000
24	0.0000	0.0043	0.0000
25	0.0000	0.0017	0.0063
26	0.0000	0.0000	0.0406
27	0.0000	0.0000	0.0003
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0268	0.0000	0.0000
31	NA	0.0000	NA
Monthly Average (cfs)	0.002	0.003	0.002

Monthly Discharge

Cubic Feet	6288	7239	4619
Gallons	47035	54152	34553
Acre-Feet	0.14	0.17	0.11

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

^a Contains data estimated from field observations and electronic record at adjacent or comparable gages.

Gaging Station GS39 is located in the drainage ditch northwest of the 904 Pad. This location is a RFCA Source Location station monitoring water flowing from the area of the 903 Pad as well as part of the 904 Pad and contractor yard to South Walnut Creek. This station collects samples for selected radionuclides using continuous, flow-paced sampling.

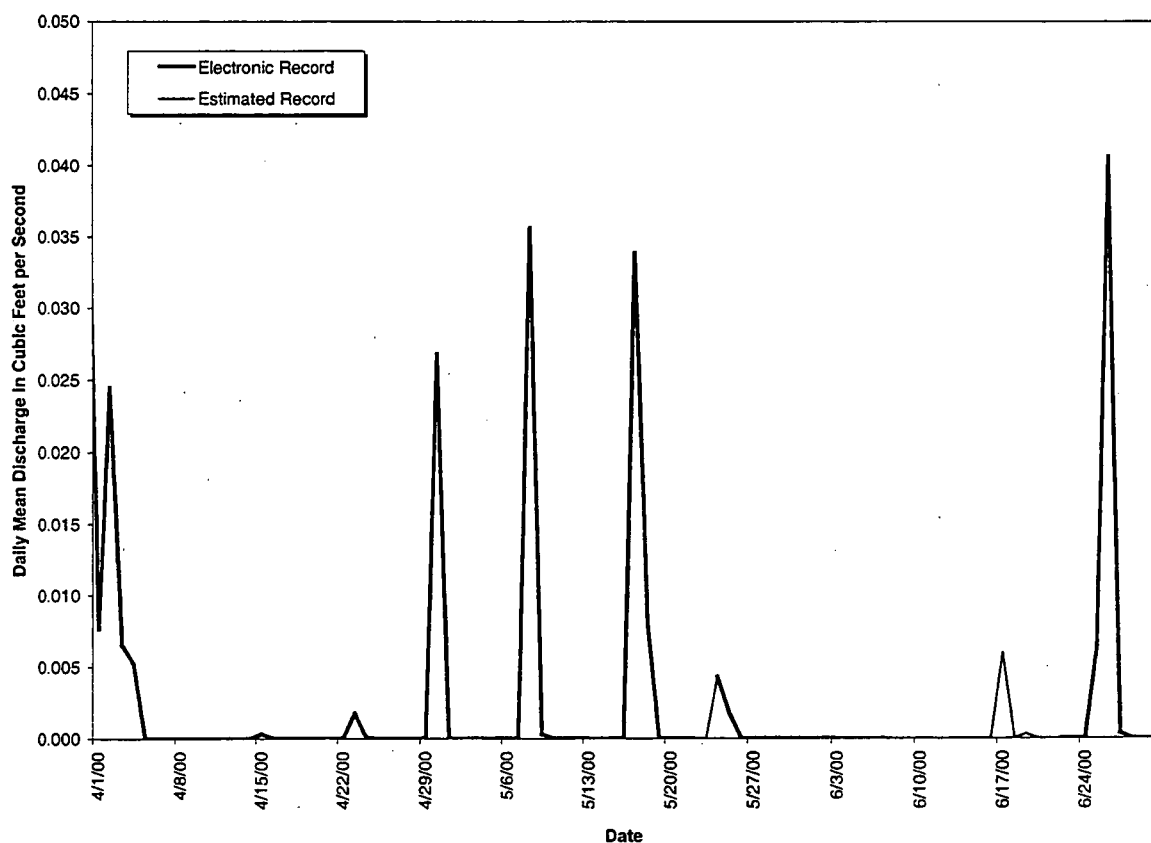


Figure 4-8. Mean Daily Discharge at GS39 Water Year 2000 (April, May, and June)

Table 4-9. Gaging Station GS40: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.144	0.041	0.021
2	0.238	0.036	0.022
3	0.122	0.033	0.020
4	0.069	0.032	0.019
5	0.047	0.029	0.020
6	0.041	0.022	0.020
7	0.040	0.019	0.019
8	0.039	0.288	0.022
9	0.036	0.035	0.022
10	0.034	0.028	0.020
11	0.033	0.026	0.016
12	0.032	0.026	0.014
13	0.029	0.025	0.014
14	0.028	0.023	0.015
15	0.080	0.021	0.013
16	0.046	0.023	0.039
17	0.032	0.247	0.146
18	0.032	0.101	0.022
19	0.033	0.026	0.041
20	0.033	0.025	0.022
21	0.032	0.024	0.025
22	0.056	0.023	0.025
23	0.089	0.021	0.025
24	0.037	0.100	0.026
25	0.037	0.033	0.173
26	0.040	0.023	0.322
27	0.045	0.021	0.036
28	0.045	0.019	0.032
29	0.064	0.019	0.028
30	0.241	0.021	0.027
31	NA	0.021	NA
Monthly Average (cfs)	0.062	0.046	0.042

Monthly Discharge

Cubic Feet	161890	123595	109450
Gallons	1211022	924552	818740
Acre-Feet	3.72	2.84	2.51

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

40

Gaging Station GS40 is located on the concrete spillway east of Tenth Street, south of Building 997. This location is a RFCA Performance Monitoring Location monitoring water flowing from the 700 area to South Walnut Creek. This station samples for selected radionuclides using continuous, flow-paced sampling.

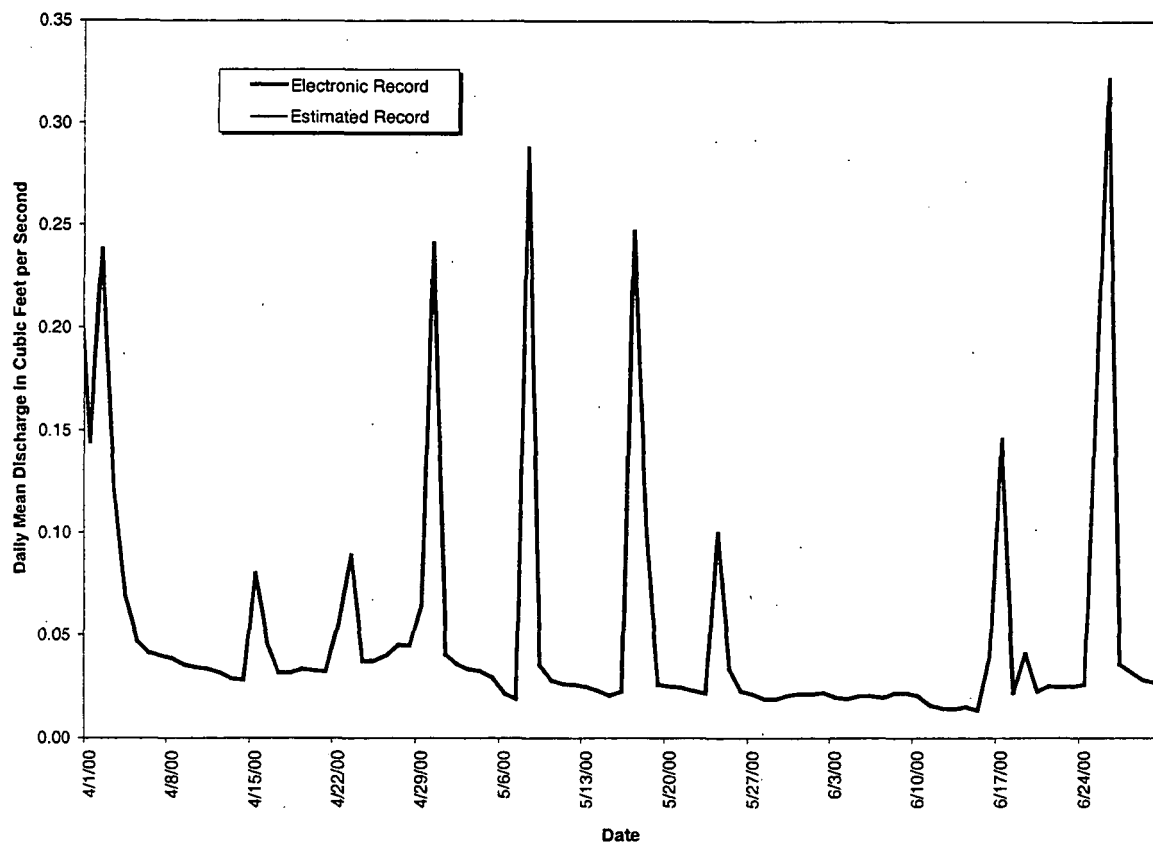


Figure 4-9. Mean Daily discharge at GS40 Water Year 2000 (April, May, and June)

Table 4-10. Gaging Station GS43: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.0000	0.0000	0.0000
2	0.0000	0.0107	0.0000
3	0.0000	0.0019	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0002	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0009	0.0000
11	0.0243	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0002	0.0000
16	0.0000a	0.0000	0.0000
17	0.0000	0.0000	0.0001
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0001
26	0.0000	0.0000	0.0001
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0001	0.0000	0.0000
31	NA	0.0043	NA
Monthly Average (cfs)	0.001	0.001	0.000

Monthly Discharge

Cubic Feet	2112	1571	27
Gallons	15795	11751	202
Acre-Feet	0.05	0.04	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

^a Contains data estimated from field observations and electronic record at adjacent or comparable gages.

42

Gaging station GS43 is located in the ditch at the northeast corner of T886A. This location is a RFCA Performance Monitoring Location monitoring runoff from the eastern portion of the 800 area including Building 875, T886A, and the eastern half of Building 886. Water passing this monitoring location continues to South Walnut Creek. This station samples for selected radionuclides and metals using continuous, flow-paced sampling.

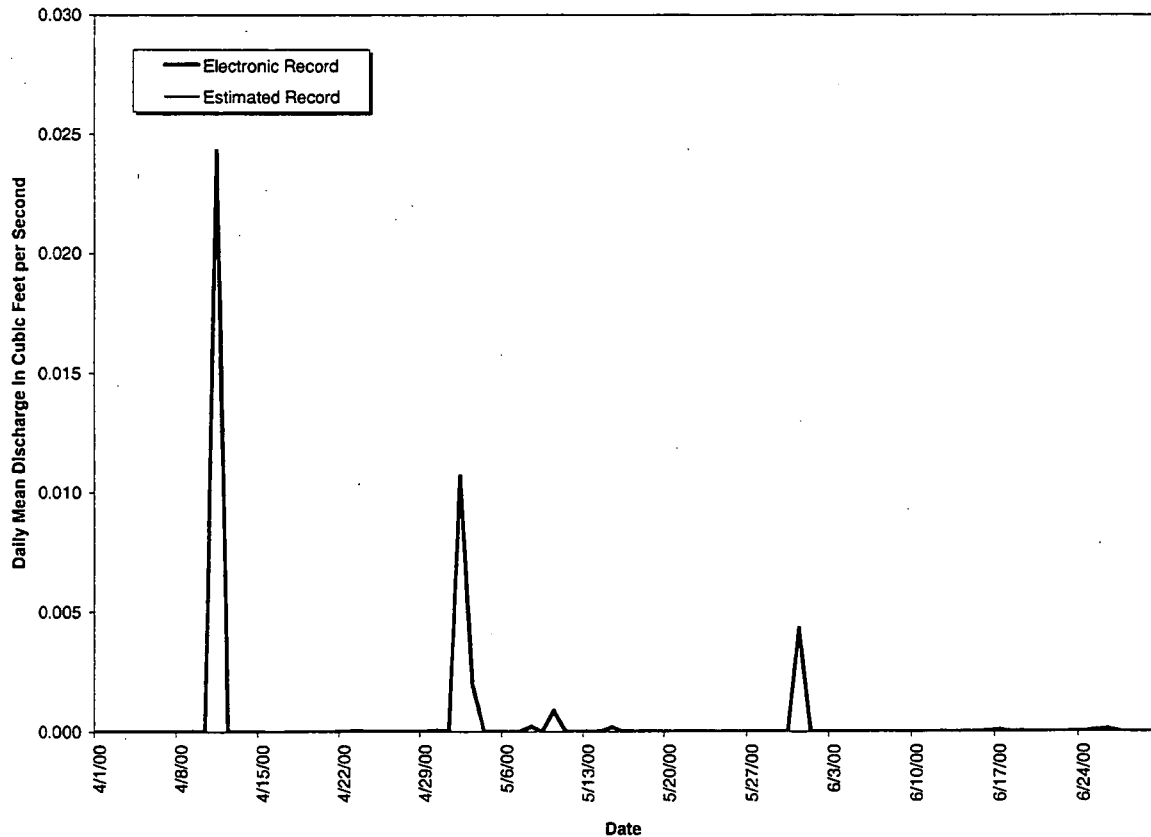


Figure 4-10. Mean Daily Discharge at GS43, Water Year 2000 (April, May, and June)

Table 4-11. Gaging Station SW022: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.056a	0.000	0.000
2	0.291	0.000	0.000
3	0.041a	0.000	0.000
4	0.000	0.000	0.000
5	0.000	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.273	0.000
9	0.000	0.006	0.000
10	0.000	0.000	0.000
11	0.000a	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000a	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.209	0.014
18	0.000	0.053	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.011	0.073
26	0.000	0.000	0.307
27	0.000	0.000	0.003
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.243	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.021	0.018	0.013

Monthly Discharge

Cubic Feet	54553	47762	34287
Gallons	408085	357284	256482
Acre-Feet	1.25	1.10	0.79

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

^a Contains data estimated from field observations and electronic record at adjacent or comparable gages.

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Gaging Station SW022 is located 39° 53' 30"N, 105° 11' 30"W, at the Central Avenue Ditch at the Inner East Gate (See Section 4 Map). This location is a RFCA New Source Detection Location and monitors water in the Central Avenue Ditch entering the B-Series Ponds and South Walnut Creek. Storm event samples are collected for selected radionuclides.

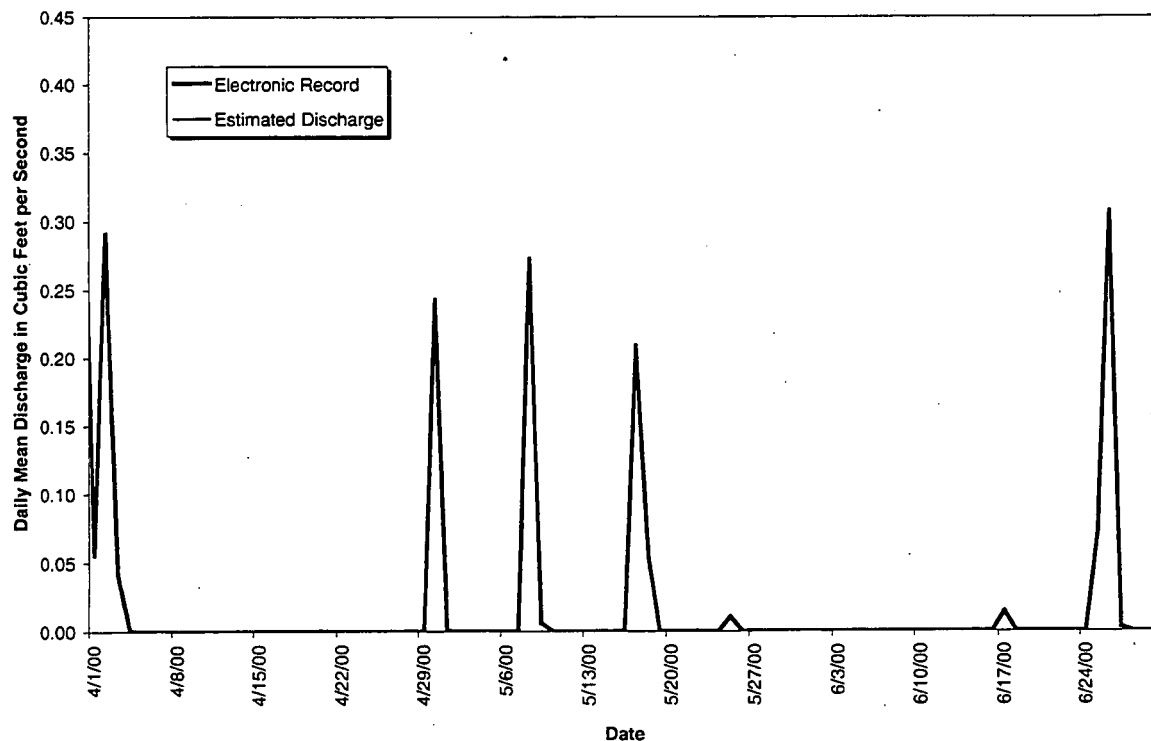


Figure 4-11. Mean Daily Discharge at SW022, Water Year 2000 (April, May, and June)

Table 4-12. Gaging Station SW027: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.194	0.005	0.000
2	0.210	0.002	0.000
3	0.248	0.000	0.000
4	0.071	0.000	0.000
5	0.008	0.000	0.000
6	0.003	0.000	0.000
7	0.002	0.000	0.000
8	0.001	0.016	0.000
9	0.001	0.138	0.000
10	0.000	0.004	0.000
11	0.000	0.002	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.031	0.000
18	0.000	0.102	0.000
19	0.000	0.008	0.000
20	0.000	0.003	0.000
21	0.000	0.001	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.073
27	0.000	0.000	0.062
28	0.000	0.000	0.003
29	0.000	0.000	0.000
30	0.077	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.027	0.010	0.005

Monthly Discharge

Cubic Feet	70279	26939	11979
Gallons	525722	201515	89610
Acre-Feet	1.61	0.62	0.27

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

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Gaging Station SW027 is located 39° 53' 12" N, 105° 11' 4"W, at the South Interceptor Ditch above Pond C-2 (See Section 4 Map). This station is a RFCA Action Level Framework and a New Source Detection Location and monitors water in the South Interceptor Ditch entering Pond C-2. This station collects samples for selected radionuclides, metals, and water quality parameters using continuous flow-paced sampling.

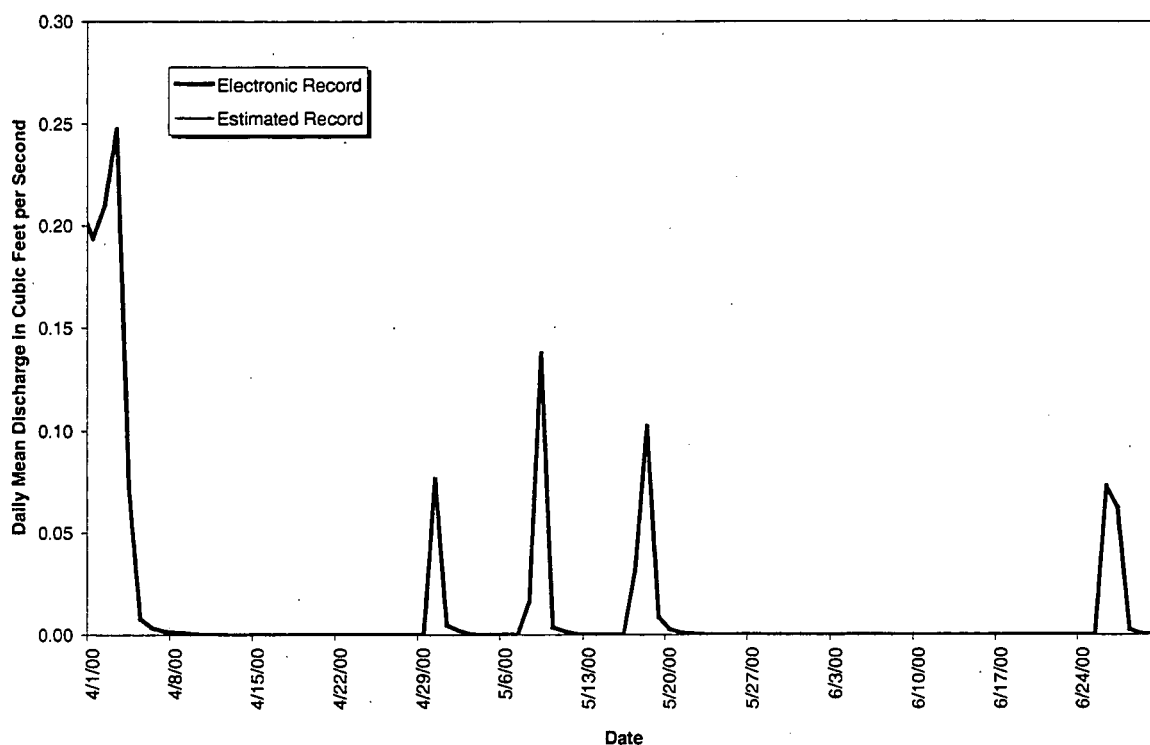


Figure 4-12. Mean Daily Discharge at SW027, Water Year 2000 (April, May, and June)

Table 4-13. Gaging Station SW091: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.0000	0.0000	0.0000
2	0.0000	0.0000	0.0000
3	0.0000	0.0000	0.0000
4	0.0000	0.0000	0.0000
5	0.0000	0.0000	0.0000
6	0.0000	0.0000	0.0000
7	0.0000	0.0000	0.0000
8	0.0000	0.0000	0.0000
9	0.0000	0.0000	0.0000
10	0.0000	0.0000	0.0000
11	0.0000	0.0000	0.0000
12	0.0000	0.0000	0.0000
13	0.0000	0.0000	0.0000
14	0.0000	0.0000	0.0000
15	0.0000	0.0000	0.0000
16	0.0000	0.0000	0.0000
17	0.0000	0.0003	0.0000
18	0.0000	0.0000	0.0000
19	0.0000	0.0000	0.0000
20	0.0000	0.0000	0.0000
21	0.0000	0.0000	0.0000
22	0.0000	0.0000	0.0000
23	0.0000	0.0000	0.0000
24	0.0000	0.0000	0.0000
25	0.0000	0.0000	0.0000
26	0.0000	0.0000	0.0000
27	0.0000	0.0000	0.0000
28	0.0000	0.0000	0.0000
29	0.0000	0.0000	0.0000
30	0.0000	0.0000	0.0000
31	NA	0.0000	NA
Monthly Average (cfs)	0.0000	0.0000	0.0000

Monthly Discharge

Cubic Feet	0	22	0
Gallons	2	168	0
Acre-Feet	0.00	0.00	0.00

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

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Gaging Station SW091 is located at State Plane 2086064; 751322, along the drainage NE of the Solar Ponds draining to the A-Series Ponds (See Section 4 Map). This location is a RFCA New Source Detection Location and monitors water draining from the area NE of the Solar Ponds. Storm event samples are collected for selected radionuclides.

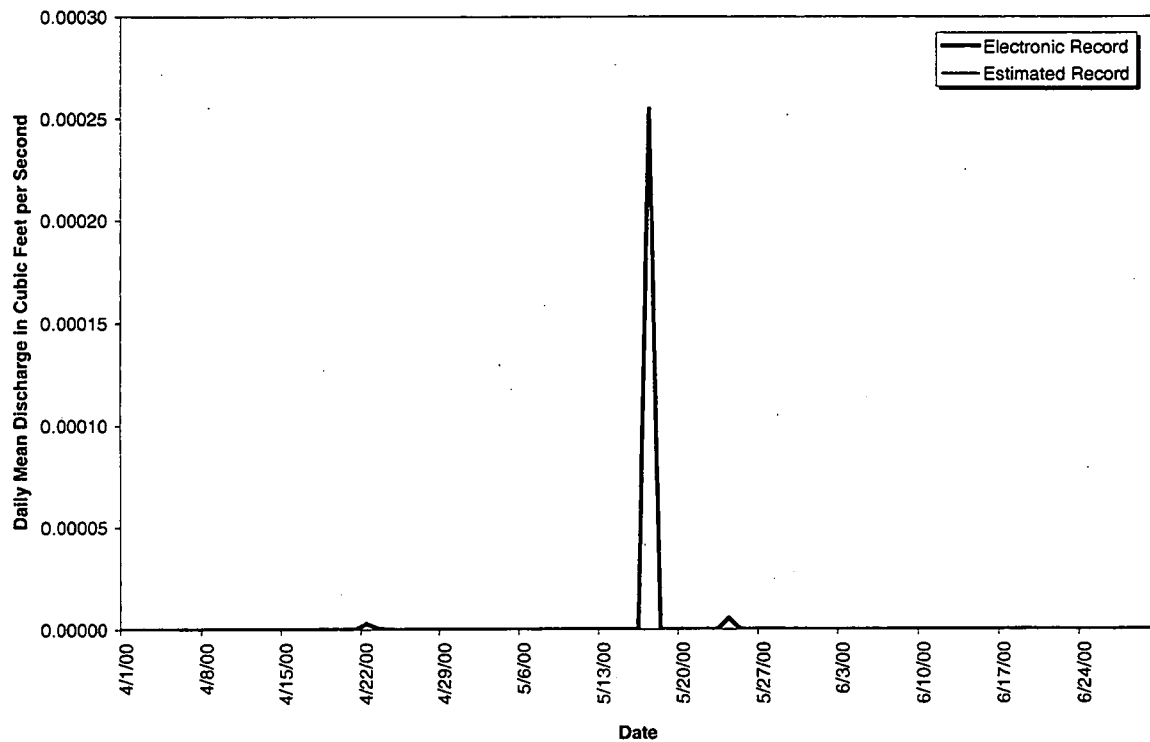


Figure 4-13. Mean Daily Discharge at SW091, Water Year 2000 (April, May, and June)

Table 4-14. Gaging Station SW093: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.597	0.143	0.073
2	0.972	0.110	0.072
3	0.602	0.097	0.067
4	0.390	0.090	0.067
5	0.271	0.081	0.067
6	0.228	0.074	0.064
7	0.171	0.069	0.062
8	0.142	0.632	0.061
9	0.134	0.228	0.061
10	0.123	0.118	0.065
11	0.115	0.102	0.068
12	0.102	0.096	0.066
13	0.093	0.085	0.067
14	0.087	0.085	0.070
15	0.158	0.083	0.163
16	0.148	0.062	0.213
17	0.123	0.570	0.444
18	0.119	0.402	0.235
19	0.109	0.133	0.258
20	0.092	0.082	0.217
21	0.090	0.056	0.130
22	0.102	0.049	0.163
23	0.186	0.031	0.171
24	0.132	0.129	0.175
25	0.081	0.153	0.517
26	0.075	0.105	1.070
27	0.062	0.086	0.257
28	0.058	0.075	0.153
29	0.067	0.072	0.116
30	0.720	0.073	0.095
31	NA	0.076	NA
Monthly Average (cfs)	0.212	0.137	0.177

Monthly Discharge

Cubic Feet	548691	366910	458497
Gallons	4104495	2744679	3429799
Acre-Feet	12.59	8.42	10.52

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

Gaging Station SW093 is located 39° 53' 51"N, 105° 11' 48"W, along North Walnut Creek at the 72" culvert 1000 feet above the Pond A-1 Bypass (See Section 4 Map). This station is a RFCA Action Level Framework and a New Source Detection Location and monitors water leaving the Site Industrial Area and entering the A-Series Ponds and North Walnut Creek. This station collects samples for selected radionuclides, metals, and water quality parameters using continuous flow-paced sampling.

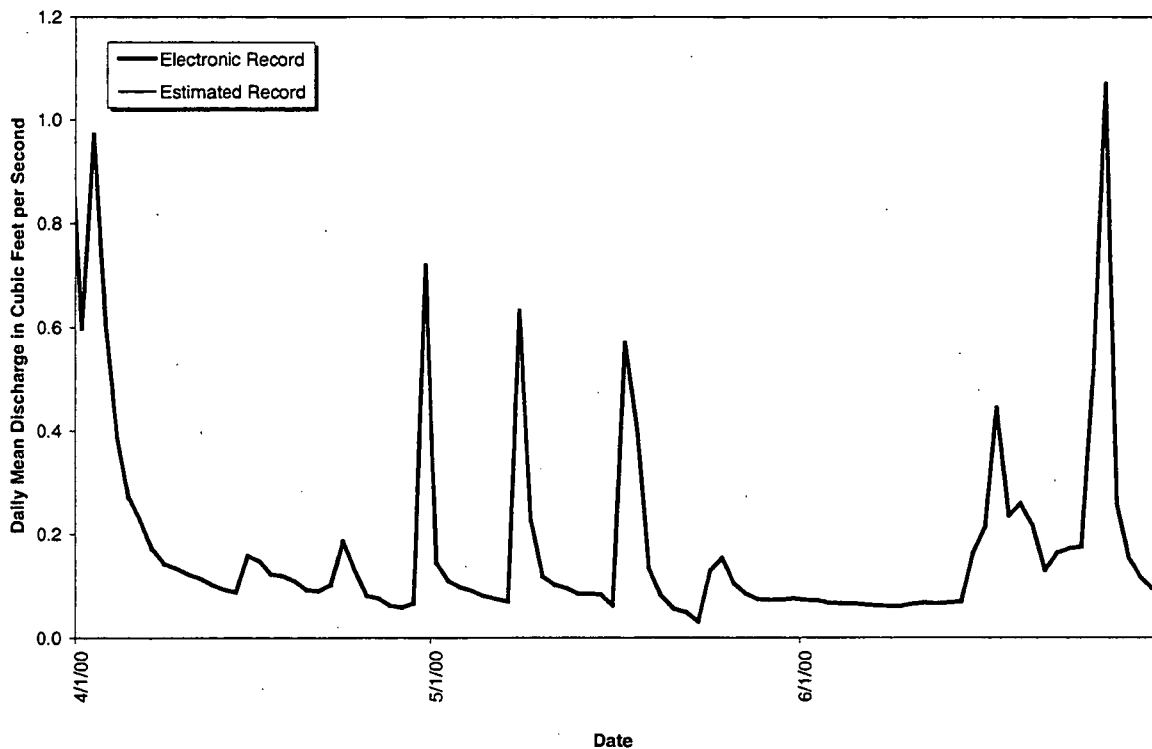


Figure 4-14. Mean Daily Discharge at SW093, Water Year 2000 (April, May, and June)

Table 4-15. Gaging Station SW120: Mean Daily Discharge (cubic feet per second)

Day	April-00	May-00	June-00
1	0.015	0.000	0.000
2	0.033	0.000	0.000
3	0.014	0.000	0.000
4	0.005	0.000	0.000
5	0.001	0.000	0.000
6	0.000	0.000	0.000
7	0.000	0.000	0.000
8	0.000	0.022	0.000
9	0.000	0.003	0.000
10	0.000	0.000	0.000
11	0.000	0.000	0.000
12	0.000	0.000	0.000
13	0.000	0.000	0.000
14	0.000	0.000	0.000
15	0.000	0.000	0.000
16	0.000	0.000	0.000
17	0.000	0.014	0.000
18	0.000	0.008	0.000
19	0.000	0.000	0.000
20	0.000	0.000	0.000
21	0.000	0.000	0.000
22	0.000	0.000	0.000
23	0.000	0.000	0.000
24	0.000	0.000	0.000
25	0.000	0.000	0.000
26	0.000	0.000	0.021
27	0.000	0.000	0.002
28	0.000	0.000	0.000
29	0.000	0.000	0.000
30	0.020	0.000	0.000
31	NA	0.000	NA
Monthly Average (cfs)	0.003	0.002	0.001

Monthly Discharge

Cubic Feet	7660	4100	1978
Gallons	57302	30671	14797
Acre-Feet	0.18	0.09	0.05

Note: Mean flow values are reported to the nearest 0.001 cfs, values less than 0.0005 cfs are reported as zero.

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Gaging Station SW120 is located at state plane 2084681.6 E 751269 N, in the drainage ditch north of the Solar Ponds along the south side of the PA Perimeter Road. This location is a Performance monitoring location in support of D&D activities for the B771/774 area. SW120 also serves as a Source Location monitoring point in support of Source Evaluation efforts for POE SW093. This location collects continuous flow-paced samples that are analyzed for Pu, U, Am, CLP metals, and TSS.

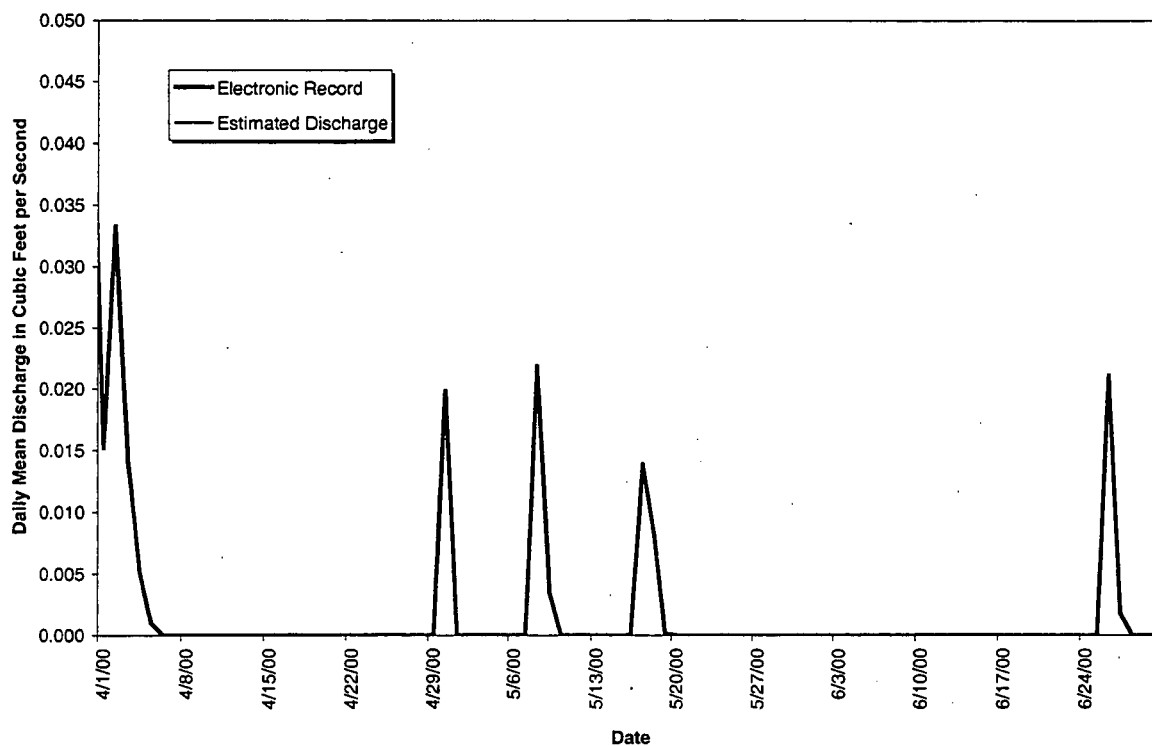


Figure 4-15. Mean Daily Discharge at SW120, Water Year 2000 (April, May, and June)

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4.2 WATER QUALITY DATA

Table 4-16. Radionuclides, Water Year 2000 (April, May, and June)

Location	Sample Dates	Result (MDA) Pu-239, -240 [pCi/l]	Result (MDA) Am-241 [pCi/l]	Result (MDA) Total Uranium [pCi/l]	Result (MDA) Tritium [pCi/l]
GS01	3/31 - 5/2/00	0.005 (0.013)	0.007 (0.013)	a	-32 (264)
GS01	5/2/00 -	b	b	a	b
GS03	3/28 - 4/13/00	-0.002 (0.015)	0.007 (0.014)	a	-261 (300)
GS03	4/13 - 4/27/00	c	c	a	c
GS03	4/27 - 5/2/00	0.016 (0.014)	0.041 (0.015)	a	-286 (296)
GS03	5/2 - 5/11/00	0.002 (0.019)	0.031 (0.029)	a	28 (300)
GS03	5/11 - 6/14/00	c	c	a	c
GS03	6/14 - 6/16/00	0.011 (0.015)	0.005 (0.015)	a	40 (290)
GS03	6/16 - 6/18/00	0.003 (0.039)	0.000 (0.018)	a	180 (290)
GS03	6/18 - 6/20/00	0.000 (0.037)	0.000 (0.015)	a	33 (280)
GS03	6/20 - 6/27/00	no result	0.035 (0.019)	a	33 (280)
GS03	6/27 - 7/17/00	0.000 (0.018)	-0.001 (0.026)	a	130 (280)
GS08	4/27 - 5/2/00	0.021 (0.016)	0.010 (0.011)	1.723 (0.017)	a
GS08	5/2 - 5/10/00	0.008 (0.021)	0.275 (0.030)	1.204 (0.022)	a
GS08	6/14 - 6/19/00	-0.002 (0.020)	-0.010 (0.025)	0.672 (0.025)	a
GS08	6/19 - 6/26/00	-0.002 (0.019)	0.002 (0.026)	0.735 (0.025)	a
GS10	4/6 - 5/2/00	0.257 (0.020)	0.744 (0.034)	3.621 (0.025)	a
GS10	5/2 - 5/15/00	0.308 (0.021)	0.517 (0.026)	1.908 (0.08)	a
GS10	5/15 - 5/25/00	2.270 (0.023)	8.385 (0.025)	2.359 (0.024)	a
GS10	5/25 - 6/19/00	0.043 (0.024)	0.145 (0.024)	2.709 (0.025)	a
GS10	6/19 - 6/26/00	0.019 (0.017)	0.087 (0.029)	2.317 (0.025)	a
GS10	6/26 - 6/27/00	0.161 (0.020)	0.236 (0.027)	0.732 (0.025)	a
GS10	6/27 - 7/3/00	0.018 (0.023)	0.050 (0.025)	3.055 (0.026)	a
GS11	6/14 - 6/17/00	0.027 (0.019)	-0.004 (0.026)	3.085 (0.023)	a
GS11	6/17 - 6/21/00	0.070 (0.025)	-0.005 (0.029)	3.163 (0.025)	a
GS27	5/8/00	0.231 (0.020)	0.077 (0.025)	0.053 (0.023)	a
GS27	5/17/00	1.710 (0.022)	0.414 (0.025)	0.147 (0.023)	a
GS27	6/17/00	0.844 (0.021)	0.312 (0.031)	0.125 (0.026)	a
GS27	6/25/00	0.647 (0.019)	0.200 (0.027)	0.149 (0.025)	a
GS32	5/8/00	0.875 (0.019)	2.680 (0.025)	2.033 (0.025)	a

- a Not applicable
b Composite sample in progress
c Non sufficient quantity

Table 4-15. Radionuclides, Water Year 2000 (April, May, and June), continued

Location	Sample Dates	Result (MDA) Pu-239, -240 [pCi/l]	Result (MDA) Am-241 [pCi/l]	Result (MDA) Total Uranium [pCi/l]	Result (MDA) Tritium [pCi/l]
GS32	5/17/00	1.440 (0.021)	3.120 (0.026)	1.367 (0.029)	a
GS32	6/6/00	7.140 (0.024)	2.170 (0.024)	1.708 (0.036)	a
GS32	6/17/00	0.333 (0.021)	0.432 (0.025)	1.198 (0.029)	a
GS39	4/3 - 5/24/00	0.004 (0.020)	0.000 (0.029)	a	a
GS39	5/24 - 7/17/00	0.059 (0.020)	0.002 (0.027)	a	a
GS40	3/22 - 4/13/00	0.047 (0.018)	0.140 (0.024)	a	a
GS40	4/13 - 5/18/00	0.049 (0.021)	0.109 (0.026)	a	a
GS40	5/18 - 6/27/00	0.026 (0.017)	0.038 (0.025)	a	a
GS40	6/27 - 7/17/00	0.063 (0.019)	0.093 (0.026)	a	a
GS43	5/8 - 7/17/00	0.004 (0.019)	0.005 (0.025)	10.225 (0.022)	a
SW022	4/3 - 6/17/00	0.002 (0.021)	-0.007 (0.027)	0.429 (0.022)	a
SW022	6/17 - 7/17/00	0.546 (0.019)	0.144 (0.026)	0.813 (0.026)	a
SW027	3/30 - 5/11/00	0.014 (0.020)	0.004 (0.025)	1.935 (0.022)	a
SW027	5/11 - 7/17/00	1.030 (0.021)	0.177 (0.026)	0.796 (0.023)	a
SW093	4/11 - 5/2/00	0.012 (0.013)	0.008 (0.012)	2.445 (0.019)	a
SW093	5/2 - 5/15/00	0.017 (0.018)	0.014 (0.025)	2.469 (0.022)	a
SW093	5/15 - 5/25/00	0.022 (0.022)	0.020 (0.025)	2.288 (0.025)	a
SW093	5/25 - 6/19/00	-0.004 (0.020)	0.022 (0.030)	2.741 (0.024)	a
SW093	6/19 - 6/27/00	0.044 (0.020)	0.029 (0.027)	0.675 (0.024)	a
SW093	6/27 - 7/6/00	-0.003 (0.020)	0.000 (0.032)	2.860 (0.026)	a
SW120	4/30 - 7/17/00	0.299 (0.021)	0.120 (0.026)	0.944 (0.028)	a

a Not applicable

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Table 4-17. POE Metals, Water Year 2000 (April, May, and June)

Location	Sample Dates	Analyte Be ug/L	Analyte Dissolved Cd ug/L	Analyte Cr ug/L	Analyte Dissolved Ag ug/L
GS10	4/6 - 5/2/00	0.085	<0.08	2.15	<0.22
GS10	5/2 - 5/15/00	0.12	<0.08	4.8	<0.22
GS10	5/15 - 5/25/00	0.34	<0.08	5.75	<0.22
GS10	5/25 - 6/19/00	0.075	0.16	0.935	0.21
GS10	6/19 - 6/26/00	0.07	0.2	1.95	<0.22
GS10	6/26 - 6/27/00	0.19	0.44	5.1	<0.22
GS10	6/27 - 7/3/00	<0.02	<0.08	0.21	<0.22
SW027	3/30 - 5/11/00	<0.02	<0.08	0.44	<0.22
SW027	5/11 - 7/17/00	0.69	<0.08	9.6	<0.22
SW093	4/11 - 5/2/00	0.06	<0.08	1.8	<0.22
SW093	5/2 - 5/15/00	0.05	<0.08	1.6	<0.22
SW093	5/15 - 5/25/00	0.14	<0.08	2.2	<0.22
SW093	5/25 - 6/19/00	0.06	<0.08	1.5	<0.22
SW093	6/19 - 6/27/00	0.15	<0.08	4.3	0.16
SW093	6/27 - 7/6/00	<0.02	<0.08	0.74	<0.22

Table 4-18. Other Metals, Water Year 2000 (April, May, and June)

Analyte ug/l	Result GS32, 05/08/00	Result GS32, 05/17/00	Result GS32, 06/06/00	Result GS32, 06/17/00
Aluminum	2490	7890	15200	1860
Antimony	5.7	6.3	5.8	6.9
Arsenic	2.9	3.9	7.1	2.9
Barium	56.1	91.3	168	86.9
Beryllium	0.15	0.48	0.92	0.15
Cadmium	0.38	0.7	1.8	0.54
Calcium	32200	32500	58600	47900
Chromium	4.9	13.2	23.0	4.5
Cobalt	1.0	2.8	6.8	1.1
Copper	21.8	36.3	45.0	38.3
Iron	2420	7380	18800	1880
Lead	8.6	25.9	37.7	6.2
Lithium	17.2	15.9	24.9	22.8
Magnesium	3160	3190	8030	4150
Manganese	80.1	166	450	110
Mercury	<0.10	<0.10	<0.10	<0.10
Molybdenum	5.9	3.9	5.8	8.6
Nickel	5.4	9.5	17.9	6.2
Potassium	15400	86.5	10400	17600
Selenium	<1.1	1.6	<1.1	1.3
Silver	<0.12	<0.12	0.24	<0.12
Sodium	84400	35200	58600	77200
Strontium	174	160	245	266
Thallium	<0.95	<0.95	<0.95	<0.95
Tin	1.8	<0.85	<0.85	<0.85
Vanadium	10.9	24.9	42.2	8.9
Zinc	526	422	1270	933

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Table 4-19. Other Metals, Water Year 2000 (April, May, and June) continued

Analyte ug/l	Result GS43, 11/11/99 – 05/08/00	Result GS43, 05/08/00 – 07/17/00	Result SW120, 04/30/00 – 07/17/00
Aluminum	27.2	379	4330
Antimony	0.79	<0.52	2.3
Arsenic	0.77	0.93	6.2
Barium	84.5	64.9	65.9
Beryllium	0.13	0.09	0.27
Cadmium	0.10	0.14	0.24
Calcium	39200	29300	20200
Chromium	0.44	0.67	6.1
Cobalt	<0.20	<0.20	1.1
Copper	1.7	2.6	20.5
Iron	29.5	280	3550
Lead	0.66	<0.52	4.5
Lithium	10.5	7.0	10.8
Magnesium	16200	11100	49300
Manganese	2.5	7.9	59.6
Mercury	<0.10	<0.10	<0.10
Molybdenum	6.0	2.9	1.2
Nickel	0.67	0.71	4.8
Potassium	5250	4930	7000
Selenium	3.1	1.7	<1.1
Silver	<0.12	<0.12	<0.12
Sodium	38600	23100	47300
Strontium	447	314	128
Thallium	<0.95	<0.95	<0.95
Tin	<0.85	<0.85	<0.85
Vanadium	2.4	2.8	10.6
Zinc	129	108	85.1

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Table 4-20. Water Quality Parameters, Water Year 2000 (April, May, and June)

Location	Sample Dates	Analyte Hardness mg/L
GS10	3/30 - 4/6/00	190
GS10	4/6 - 5/2/00	260
GS10	5/2 - 5/15/00	190
GS10	5/15 - 5/25/00	200
GS10	5/25 - 6/19/00	220
GS10	6/19 - 6/26/00	180
GS10	6/26 - 6/27/00	63
GS10	6/27 - 7/3/00	240
SW027	3/30 - 5/11/00	270
SW027	5/11 - 7/17/00	a
SW093	3/30 - 4/11/00	330
SW093	4/11 - 5/2/00	130
SW093	5/2 - 5/15/00	300
SW093	5/15 - 5/25/00	240
SW093	5/25 - 6/19/00	220
SW093	6/19 - 6/27/00	100
SW093	6/27 - 7/6/00	a

a Incomplete laboratory analysis

5. INCIDENTAL WATERS

5.1 INCIDENTAL WATERS DEFINITION AND ROUTING MATRIX

An incidental water is defined as precipitation, surface water, groundwater, utility water, process water, or waste water collecting in one or more of several types of containments. These containments can include excavation sites, foundation drains, secondary containment berms, electrical vaults, utility pits and manholes, or other natural or manmade depressions, which must be dewatered.

Water collected in this manner has the potential to become contaminated via contact with the surrounding containment material. Sampling and disposition of incidental waters is conducted per Site Procedure 1-C91-EPR-SW.01, *Control and Disposition of Incidental Waters*. Incidental waters are typically sampled for pH, nitrates, conductivity, and gross alpha and gross beta (when radionuclides are suspected). Additional testing for volatile organic compounds and metals is performed when a specific potential contaminant source is known to exist. Disposition depends on the analytical results. Routing options for incidental waters are outlined in the following table.

Table 5-1. Incidental Waters Routing Matrix

Incidental Water Routing	Routing Criteria	Treatment Processes
Ground/Storm Drain	<ul style="list-style-type: none"> Water meets discharge limits per Incidental Waters procedure 	N/A
Building 995 Waste Water Treatment Plant (WWTP)	<ul style="list-style-type: none"> Water above discharge to ground limits Water meets Internal Waste Streams Program review criteria 	Activated Sludge w/ tertiary clarifiers Dual media filtration UV disinfection
Building 891 Consolidated Water Treatment Facility (CWTF)	<ul style="list-style-type: none"> Water above discharge to ground limits Water not accepted by WWTP Water meets CWTF acceptance criteria and has both radionuclide and organic constituents 	Chemical precipitation Microfiltration UV/ peroxide oxidation Granular activated carbon Ion exchange
Building 374	<ul style="list-style-type: none"> Water above discharge to ground limits Water not accepted by WWTP Water has radionuclides, but no organic constituents 	Flash evaporation (Steam-heated reactor with spray evaporation)

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5.2 QUARTERLY INCIDENTAL WATER DISPOSITIONS

Twenty-three (23) incidental waters were sampled and dispositioned during the third quarter of FY00. The following table summarizes the location and route of disposal.

Table 5-2. Quarterly Incidental Water Dispositions FY2000 (April, May, and June)

Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
371	Manhole	Telecom manhole at S.E. corner of 371H.	1	Treatment (B374)
371	Manhole	Manhole 20	1	Treatment (B374)
371	Manhole	Manhole 21	1	Treatment (B891)
443	Transformer Berm	NW of 443	2	Discharge to ground
444	Manhole	Electric manhole S. of Bldg. 444, E. of 439	1	Treatment (B374)
549	Transformer Berm	North of 549	1	Treatment (B995)
559	Bottle	Bldg 559	1	Discharge to ground
559	Drum	Drum 2 of 2 in 559	1	Treatment (B995)
559	Drum	Drum 1 of 2 at Bldg. 559	1	Discharge to ground
708	Transformer Berm	West of Bldg 708	1	Treatment (B995)
750	Transformer Berm	NE of 750	1	Treatment (B995)
771	Transformer Berm	NW of 771	1	Treatment (B995)
776	Transformer Berm	NW of 776, heavy grate	1	Discharge to ground
865	Transformer Berm	West of 865, Heavy Grate	2	Discharge to ground
875	Foundation Drain	B875 Foundation Drain	1	Treatment (B995)
881	Room	Bldg. 881, Room 286	1	Treatment (B995)
883	Transformer Berm	SE of 883, heavy grate.	1	Treatment (B995)
886	Foundation Drain	B886 Foundation Drain	1	Discharge to ground
904	Transformer Berm	904 Pad transformer berm	1	Treatment (B891)
991	Drum	Two partially full 55-gallon drums	1	Discharge to ground

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Location/ Building	Location Type	Location Description	# of Incidental Waters	Route of Disposal
991	Drum	Rigid liner w/drum (from deluge system testing)	1	Discharge to ground

The thirteen incidental waters requiring treatment were routed to the following Site treatment facilities:

- Building 995 – WWTP 8
- Building 891 – CWTF 2
- Building 374 3

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